



DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS-R8-ES-2021-0108; FF09E21000 FXES1111090FEDR 234]

RIN 1018-BE90

Endangered and Threatened Wildlife and Plants; Foothill Yellow-Legged Frog; Threatened Status with Section 4(d) Rule for Two Distinct Population Segments and Endangered Status for Two Distinct Population Segments

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), determine endangered status for two distinct population segments (DPSs) and threatened status for two DPSs of the foothill yellow-legged frog (*Rana boylei*), a stream-dwelling amphibian from Oregon and California. After review of the best scientific and commercial information available, we have determined endangered status for the South Sierra and South Coast DPSs and threatened status for the North Feather and Central Coast DPSs of the foothill yellow-legged frog under the Endangered Species Act of 1973 (Act), as amended. This rule adds the four DPSs to the List of Endangered and Threatened Wildlife and extends the Act's protections to these DPSs. We also finalize rules under the authority of section 4(d) of the Act for the North Feather and Central Coast DPSs that provide measures that are necessary and advisable to provide for the conservation of these two DPSs. We have determined that designation of critical habitat for the four DPSs is not determinable at this time.

DATES: This rule is effective [INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: This final rule is available on the internet at <https://www.regulations.gov> under Docket No. FWS-R8-ES-2021-0108. Comments and materials we received, as well as supporting documentation we used in preparing this rule, are available for public inspection at <https://www.regulations.gov> at Docket No. FWS-R8-ES-2021-0108.

FOR FURTHER INFORMATION CONTACT: Michael Fris, Field Supervisor, U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, 2800 Cottage Way, Sacramento, CA 95825; telephone 916-414-6700. Individuals in the United States who are deaf, deafblind, hard of hearing, or have a speech disability may dial 711 (TTY, TDD, or TeleBraille) to access telecommunications relay services. Individuals outside the United States should use the relay services offered within their country to make international calls to the point-of-contact in the United States.

SUPPLEMENTARY INFORMATION:

Executive Summary

Why we need to publish a rule. Under the Act, a species warrants listing if it meets the definition of an endangered species (in danger of extinction throughout all or a significant portion of its range) or a threatened species (likely to become endangered within the foreseeable future throughout all or a significant portion of its range). If we determine that a species warrants listing, we must list the species promptly and designate the species' critical habitat to the maximum extent prudent and determinable. We have determined that the South Sierra and South Coast DPSs of the foothill yellow-legged frog both meet the definition of an endangered species and the North Feather and Central Coast DPSs of the foothill yellow-legged frog both meet the definition of a threatened species; therefore, we are listing them as such. We have determined that designation of critical habitat for the four DPSs is not determinable at this time. Listing a species or DPS as an endangered or threatened species can be completed only by issuing a rule through the Administrative Procedure Act rulemaking process (5 U.S.C. 551 et seq.).

What this document does. This rule lists the South Sierra and South Coast DPSs of the foothill yellow-legged frog as endangered and lists the North Feather and Central Coast DPSs of the foothill yellow-legged frog as threatened with rules issued under section 4(d) of the Act (“4(d) rules”).

The basis for our action. Under the Act and our 1996 DPS policy (61 FR 4722; February 7, 1996), we may determine that a species or DPS is endangered or threatened because of any of five factors: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence. We have determined that the following threats are driving the status of the foothill yellow-legged frog within the areas occupied by the DPSs: altered hydrology (Factor A; largely attributable to dams, water diversions, channel modifications), nonnative species (Factors C and E), and the effects of climate change (Factor E; exacerbating drought, high-severity wildfire, extreme flood conditions). Other threats currently impacting the species include disease and parasites, agriculture (including pesticide drift), mining, urbanization (including development and roads), and recreation.

Section 4(a)(3) of the Act requires the Secretary of the Interior (Secretary) to designate critical habitat concurrent with listing to the maximum extent prudent and determinable. Due to our statutory requirements to complete a final determination within 12 months of issuing a proposed rule, we have not yet been able to obtain the necessary economic information needed to develop a proposed critical habitat designation for the four DPSs of the foothill yellow-legged frog. Therefore, we find that designation of critical habitat for the four DPSs is currently not determinable. Once we obtain the

necessary economic information, we will propose critical habitat designations for the four DPSs.

Previous Federal Actions

On December 28, 2021, we published in the *Federal Register* (86 FR 73914) a proposed rule to list the North Feather and Central Coast DPSs of the foothill yellow-legged frog as threatened and the South Sierra and South Coast DPSs of the foothill yellow-legged frog as endangered under the Act (16 U.S.C. 1531 et seq.). In that proposed rule, we also completed not-warranted 12-month findings for the North Coast and North Sierra DPSs of the foothill yellow-legged frog. The proposed rule opened a 60-day comment period, ending February 28, 2022. On February 28, 2022, in response to a request we received during the comment period, we published in the *Federal Register* (87 FR 11013) a document extending the comment period on the December 28, 2021, proposed rule for an additional 30 days, ending March 30, 2022. Please refer to the December 28, 2021, proposed rule for information regarding the status of the North Coast and North Sierra DPSs, as well as other previous Federal actions concerning the foothill yellow-legged frog.

Peer Review

A species status assessment (SSA) team prepared an SSA report for the foothill yellow-legged frog. The SSA team was composed of Service biologists, in consultation with other species experts. The SSA report represents a compilation of the best scientific and commercial data available concerning the biological status of the species and the four DPSs we are listing, including the impacts of past, present, and future factors (both negative and beneficial) affecting them.

In accordance with our joint policy on peer review published in the *Federal Register* on July 1, 1994 (59 FR 34270), and our August 22, 2016, memorandum updating and clarifying the role of peer review of listing actions under the Act, we

solicited independent scientific review of the information contained in the foothill yellow-legged frog SSA report. We received peer review from three appropriate specialists regarding the SSA. The peer reviews can be found at <https://www.regulations.gov>. In preparing the proposed rule, we incorporated the results of these reviews, as appropriate, into the SSA report, which was the foundation for the proposed rule and this final rule. A summary of the peer review comments and our responses can be found in the **Summary of Comments and Recommendations** below. The peer review comments as well as a copy of the most current SSA report (Service 2023, entire) and other materials relating to this rule can be found on <https://www.regulations.gov> at Docket No. FWS-R8-ES-2021-0108.

Summary of Changes from the Proposed Rule

In preparing this final rule, we reviewed and fully considered the comments we received during the comment period on our December 28, 2021, proposed rule (see 86 FR 73914, December 28, 2021; 87 FR 11013, February 28, 2022). This final rule reflects minor, nonsubstantive changes to the SSA report and clarification of threat information based on the comments we received, as discussed below under **Summary of Comments and Recommendations**. However, the information we received during the comment period did not change our determinations for the four DPSs: we found in the December 28, 2021, document that the North Coast and North Sierra DPSs are not warranted for listing under the Act.

Summary of Comments and Recommendations

In the proposed rule published in the *Federal Register* on December 28, 2021 (86 FR 73914), we requested that all interested parties submit written comments on the proposal by February 28, 2022. On February 28, 2022, we published in the *Federal Register* (87 FR 11013) a document extending the comment period by 30 days, until March 30, 2022. We also contacted appropriate Federal and State agencies, Tribes,

scientific experts and organizations, and other interested parties and invited them to comment on the proposal. Newspaper notices inviting general public comment were published throughout the range of the species in the Monterey Herald, Oregonian, Sacramento Bee, San Luis Obispo Tribune, Santa Barbara News-Press, and Ventura County Star. We did not receive any requests for a public hearing. All substantive information regarding the four DPSs received during the comment period has either been incorporated directly into the SSA or this final determination as appropriate. A summary of the substantive comments is outlined below.

Peer Reviewer Comments

As discussed in **Peer Review** above, we received comments from three peer reviewers on the draft SSA report. We reviewed all comments we received from the peer reviewers for substantive issues and new information regarding the information and analysis contained in the SSA report. The peer reviewers generally concurred with our information, methods, and conclusions, and they provided additional information, clarifications, and suggestions to improve the SSA report. Peer reviewer comments addressed issues related to the effects of disease, mining, wildfire, climate change, and watershed impairment on the species, as well as its preferred hydraulic conditions, potential for species hybridization, breeding conditions, metapopulation dynamics, and elevational range. All substantive peer review comments were incorporated into version 2.11 of the SSA report (Service 2023, entire) as appropriate. A summary of the peer review comments is outlined below.

(1) Comment: A peer reviewer commented that there was insufficient evidence to claim that threats to the species from the disease chytridiomycosis primarily affects populations in the [Central Coast, South Coast, and South Sierra DPSs] because of a lack of studies of chytridiomycosis in the species in the more northern DPSs.

Our Response: We have changed the latest draft of the SSA to remove reference to chytridiomycosis as primarily affecting populations in the Central Coast, South Coast, and South Sierra DPSs.

(2) *Comment:* A peer reviewer commented that tributary habitat is not necessarily “non-breeding” because the species can use also use tributary habitat for breeding, depending on environmental conditions at the time, such as in the Sierra Nevada Mountains.

Our Response: We have changed the latest draft of the SSA to reflect that tributary habitat can also be used as breeding habitat when environmental conditions are favorable. Specifically, we updated the Upland and Tributary (Nonbreeding) Habitat Section (Section 4.8) to note that tributary habitat can be used as breeding habitat in favorable environmental conditions.

(3) *Comment:* A peer reviewer commented that the conclusions from Dever *et al.* (2007) are not necessarily applicable for use in delineating metapopulations. Specifically, Dever *et al.* (2007) found genetic differentiation between subpopulations along the Eel River at distances of 10 kilometers (km) between subpopulations. The peer reviewer commented that they had observed genetic connectivity between populations at distances greater than 10-km along the North Fork of the American River and thus using a 10-km distance as a benchmark distance for genetic differentiation may not be accurate.

Our Response: We have changed the latest draft of the SSA to reflect that a metapopulation can maintain genetic cohesion with distances greater than 10-km between populations. Specifically, we removed discussions of using the 10-km distance observed by Dever *et al.* (2007) to delineate metapopulations from the Metapopulation Structure (Section 2.9) and Metapopulation Connectivity (Section 5.5) Sections.

(4) *Comment:* A peer reviewer commented that Figure 33, a diagram of the interactions between drying and drought on habitat elements and demographic and

distribution parameters, should reflect that drought has a direct effect on the abundance of the species.

Our response: We changed Figure 33 during revisions from v1.0 to v 2.0 of the SSA to reflect this relationship between drying and drought and species abundance.

Federal Agency Comments

(5) Comment: The U.S. Forest Service (Sierra National Forest) commented that they had performed surveys for the species in the Jose and Mill Creek basin following the 2020 Creek Fire and that they detected the species in only one survey reach of Mill Creek, Fresno County, California. In addition, the Plumas National Forest informed us that a foothill yellow-legged frog observation in their Natural Resource Information Strategy Project (NRIS) Aquatic Survey database located in the disjunct eastern portion of the North Feather DPS was erroneous and should not be used to inform the geographic extent of the species in the North Feather DPS.

Our Response: The current version of the SSA report (version 2.0) reflects the presence of the species in Mill Creek based on information provided to us. For the North Feather DPS, we reviewed and concurred with the California Department of Fish and Wildlife (CDFW) assessment of the DPS's range based on multiple observations of the DPS prior to 1969 (CDFW 2019b, p. 32), and thus we did not use the Forest Service's NRIS database entry to inform our delineation of the DPS's range or the DPS boundary.

Comments from Local Government

(6) Comment: The Tulare County Board of Supervisors commented that they were opposed to the designation of the South Sierra DPS as endangered because of their concern that management of the DPS would reduce water availability for agriculture. They stated that the South Sierra DPS has not been adequately surveyed, and, therefore, the DPS may be more abundant. The board recommended addressing wildfire

management and removing invasive species as an alternative to listing the South Sierra DPS.

Our Response: At this time, we have no information to indicate that listing or management of the South Sierra DPS would reduce water availability for agriculture or other purposes. We acknowledge the importance of water availability and delivery for both agricultural and municipal purposes throughout the San Joaquin Valley and California, and we will cooperate and assist water management and delivery entities as they meet the water needs of the public. With regard to the sufficiency of occurrence data available for determining the status of the South Sierra DPS, the Act requires our listing determinations to be based solely on the best scientific and commercial information available at the time of our rulemaking; using that information, we determine whether the listable entity meets the Act's definition of an endangered or a threatened species. In our efforts to determine the status of the species and DPSs (including the South Sierra DPS), we contacted numerous Federal, State, and academic researchers and species experts, as well as other land management entities, and requested occurrence information, survey information, and information regarding threats impacting the foothill yellow-legged frog and its habitat. We have determined that the information we have received is the best scientific and commercial information available at this time regarding occurrence information for the DPSs, including the South Sierra DPS. With regard to alternative management strategies as opposed to listing the DPS under the Act, both wildfires and invasive species are identified as threats to the South Sierra DPS, but they are only two of many threats currently impacting the DPS and its habitat. We have determined that listing the South Sierra DPS as endangered will provide the regulatory protections needed to prevent further decline of the DPS and its habitat.

Public Comments

(7) *Comment:* A commenter requested the Service work with water management agencies to ensure that water management practices are beneficial to the foothill yellow-legged frog. Specifically, the commenter was concerned that current dam relicensing efforts on the Stanislaus River have not engaged stakeholders and will not consider the needs of the species. The commenter requested the Service create guidelines for water management practices by dam licensees, formulate mitigation requirements for water projects, require water agencies to fund recovery efforts, prioritize removal of nonnative invasive predators of the species, include protective measures for the species in existing National Forest Plans, and engage the State Water Board in “formal consultation” regarding suction dredging activities.

Our Response: While we are not the lead government agency or have the decision-making authority for the actions that were referenced in this comment, as part of our mission to conserve and protect sensitive species and their habitats, we are required to coordinate with Federal regulatory and land management agencies such as the Federal Energy Regulatory Commission (responsible for licensing privately owned dams), U.S. Army Corps of Engineers (regulation authorized by the Clean Water Act (33 U.S.C. 1251 et seq.)), the U.S. Forest Service (Forest Service), Bureau of Land Management (BLM), and the National Park Service (NPS). Part of this coordination is to provide recommendations for the types of actions identified by the commenter. These Federal entities are also required under sections 2 and 7 of the Act to use their authorities to conserve endangered and threatened species and their habitats and to consult with us on their activities. Federally approved, authorized, or funded activities that may adversely affect listed species or jeopardize a listed species’ continued existence require formal consultation under section 7 of the Act. We also coordinate with our State partners, such as the California Department of Fish and Wildlife and the State Water Resource Control Board, to assist in protecting and conserving listed and sensitive species and their

habitats. Suction dredging activities within streams by nonfederal entities are managed by the State, unless Federal authorization, funding, or permitting is required, at which point we would coordinate with the Federal entity on such activities.

(8) Comment: Several commenters disagreed with our proposed determinations for the Central Coast and North Feather DPSs and recommended endangered rather than threatened status. The commenters' reasoning included information from the SSA report that states the Central Coast DPS has substantially reduced resiliency because of poor occupancy, poor connectivity, and a relatively high risk of decline, and that the DPS faces substantial threats. The commenters also note that the SSA identifies a reduction in resiliency under the mean change scenario, which would put the Central Coast DPS at risk of functional extirpation or extirpation within 40 years. The commenters also state that the SSA report and proposed rule include discussion of the beneficial effects of two habitat conservation plans (HCPs) (East Contra Costa HCP and Santa Clara Valley HCP) that provide conservation for the Central Coast DPS despite the DPS appearing to be absent from one of the HCP planning areas (East Contra Costa HCP). The commenters reference foothill yellow-legged frog information in the 2006 Contra Costa HCP that states the species had not been documented in the planning area (Jones & Stokes 2006, appendix D). The commenters' rationale for endangered status for the North Feather DPS is that the CDFW determined that the DPS is endangered under the California Endangered Species Act (CESA), and, therefore, a Federal listing under the Act should be endangered as well.

Our Response: In making our status determinations for the Central Coast and North Feather DPSs of the foothill yellow-legged frog, we used the best scientific and commercial data available; we conclude that our threatened determinations continue to be appropriate based on whether the factors influencing each DPS's status and the DPS's response are occurring now or in the future. In the proposed rule and this final rule, we

outline our reasoning for our threatened status determinations for the Central Coast and North Feather DPSs of the foothill yellow-legged frog. One aspect in determining whether a species or DPS is considered either endangered or threatened under the Act is whether the threats facing the entity are influencing the current or future conditions of the DPS to the extent that we find that the entity requires listing under the Act. A threatened determination reflects that the threats may act on the species' future condition such that it is likely to become endangered in the foreseeable future throughout all or a significant portion of its range; an endangered determination means that the species is in danger of extinction now, throughout all or a significant portion of its range.

We acknowledge the commenter's characterization from the SSA report for the Central Coast DPS's current and future condition. The population size and abundance for the Central Coast DPS has historically been and continues to be small, and this population information did influence our characterization of the DPS's resiliency. However, we do not agree with the commenter's conclusions that the Central Coast DPS should be listed as endangered under the Act. Mainly The Central Coast DPS currently sustains numerous populations and habitat distributed throughout the DPS's range with the populations in the southern portion of its range largely intact and having limited or no development pressure and those populations in the northern part of the DPS's range are located in areas not associated with largescale urbanization and have conservation measures in place to protect the species or its habitat. The northern populations have been impacted by development; however, these impacts are associated mostly with past and not current development pressure. In our determination of the current and future condition of the Central Coast DPS, we consider not only the resiliency of the DPS but also its redundancy and resiliency (all 3R's) as outlined in our guidance for assessing the status of a species (Service 2016, entire). Although the modeling identified in the SSA report identified the resiliency of the Central Coast DPS as reduced, this reduction would

be occurring in the future, which is consistent with our threatened determination. Because the current threats facing the DPS are not influencing the current status of existing populations of the DPS to the degree that it is currently in danger of extinction, we do not find that the DPS warrants endangered status. However, based on our projections of future occupancy, modeled future risk of decline, and the increased threats from future drought conditions and increasing water demands, as well as increased wildfire frequency and intensity due to future climate change conditions, we continue to find that the appropriate listing status under the Act for the Central Coast DPS is threatened.

We also acknowledge that the East Contra Costa County HCP planning document does state that occupancy of the foothill yellow-legged frog in the HCP's planning area is unknown (Jones & Stokes 2006, appendix D). However, the document also cites older survey information and concludes that there are potential occurrences that are concentrated around the Mount Diablo area (Jennings and Hayes 1994, pp. 66–69). In 2019, the CDFW's status assessment of the species for State listing does not rule out occupancy in and around Mount Diablo (CDFW 2019b, p. 42, figure 16). Based on this information, we included the East Contra Costa County HCP in our discussion regarding conservation actions being implemented for the Central Coast DPS of the foothill yellow-legged frog (see East Contra Costa County HCP (Jones & Stokes 2006, chapter 5)).

In our analysis of the status of the North Feather DPS, we looked at the currently known occurrence records from the 2010–2020 timeframe, the current implementation of modified flow regime measures to mimic more natural hydrograph, the effects of the modified flows on improving current habitat conditions, and the current efforts of in-situ and ex-situ rearing efforts on enhancing populations of the North Feather DPS. All these factors informed our decision that the current condition of the DPS, although reduced, still exhibits sufficient resiliency, redundancy, and representation and would provide for, at a minimum, pockets of favorable conditions that allow the North Feather DPS to

currently sustain its existing populations in the wild. Therefore, the current condition of the North Feather DPS has not been reduced to such a degree to consider it in danger of extinction throughout its range. However, the impacts from future effects of climate change related to changes in snowpack, precipitation timing, and drought (intensity, frequency, and duration), and from the climate-related impacts to wildfire severity, led us to conclude that the DPS will likely become in danger of extinction in the future and is appropriately identified as a threatened species under the Act. The State's determination of endangered under CESA looks at the species within California, and an endangered status under CESA, although similar, does not equate to the standards set forth for determining an entity to be endangered under the Act.

(9) *Comment:* Several commenters assert that we did not consider the effects of the invasive algae *Didymosphenia geminata* on the foothill yellow-legged frog. The commenters also cited to CDFW's determination that the North Sierra (Northeast/Northern Sierra) DPS is threatened under CESA in support of their view that the North Sierra and North Coast DPSs should be listed as threatened under the Act.

Our Response: While we did not specifically discuss the effects of the invasive aquatic diatom *Didymosphenia geminata*, commonly known as didymo or rock snot, in the SSA report, we did discuss the importance of having healthy ecosystems with suitable macroalgae communities and rock substrate that provide unaltered aquatic habitat for appropriate foraging opportunities for the foothill yellow-legged frog as part of the species' needs (see SSA report (Service 2023, chapter 4, pp. 52–66)). In our SSA report, we referenced research specific to *D. geminata* (Furey et al. 2014, entire) in relation to regulated and unregulated stream reaches associated with dams. This study examined the potential impacts of how altered hydrologic conditions may change the composition of the algae community and how these changes may limit growth of foothill yellow-legged frog tadpoles. Moreover, as a result of the comment, we reviewed the

information and updated our SSA report to reflect specific information on *D. geminata* and how it was used in our analysis and status determinations.

In response to the comment that we should follow the State's listing determination, we note that under the Act, we are required to use the best scientific and commercial information available when making a listing determination. For our listing determination we use information on occurrences, occupancy, abundance, and population trends and worked with U.S. Geological Survey (USGS) researchers to complete a rangewide population viability analysis (PVA) for the foothill yellow-legged frog (Rose et al. 2020, entire). We used the information from the PVA to inform each DPS's current condition (Service 2023, chapter 8, pp. 127–172) and potential future condition (Service 2023, chapter 9, pp. 173–199). The PVA and associated modeling was completed in 2020, and thus was not available at the time the State made its listing determination under the CESA in 2019. In addition, the processes and criteria used to determine the listing status of a species under the CESA and the Act, although similar, are not completely interchangeable as regulatory mechanisms. The Service must conduct its independent analysis regarding threats in order to make its determination under the Act. It would not be appropriate for the Service to simply adopt the State's determination of threatened status for the North Sierra DPS without providing specific information regarding threats or conducting an analysis.

Our determination of status of the North Coast DPS is contained in the December 28, 2021, 12-month finding and proposed rule (86 FR 73936–73938).

(10) Comment: A commenter stated that the Service is required to designate critical habitat at the time a species is proposed for listing if such designation is prudent and determinable. The commenter contends that the Service's justification of not having completed an economic analysis should not impede the Service from designation of

critical habitat for the species. The commenter stated that a delay in designation will further hamper conservation of the foothill yellow-legged frog.

Our Response: We acknowledge our responsibilities to determine critical habitat for a species or DPS at the time of listing if such designation is both prudent and determinable. As we stated in our proposed listing rule (see 86 FR 73942) and below (see **Critical Habitat Determinability**), a careful assessment of the economic impacts that may occur due to a critical habitat designation is still ongoing. Under our regulations at 50 CFR 424.19 and policies for designating critical habitat, we are required to complete an economic analysis of the incremental costs related to the designation and whether those costs exceed certain thresholds and make that draft economic analysis available for public comment at the time of the proposed rule to designate critical habitat. The economic analysis is not a discretionary action we can avoid completing prior to issuing a proposed rule to designate critical habitat. We will publish a proposed critical habitat designation following completion of our draft economic analysis.

(11) Comment: Several commenters requested the Service develop a section 4(d) rule under the Act to exempt timber harvest practices if the timber harvest activities follow the California Forest Practice Rules. The commenters indicated that the beneficial effect of these California Forest Practice Rules is indicated by the continued presence of the species within timber harvest areas.

Our Response: The 4(d) rules excepting certain activities from section 9 prohibitions against take for the North Feather and Central Coast DPSs promote conservation of the species by encouraging management of the species' stream habitat and landscape in ways that meet both resource management considerations and the conservation needs of the species. Specifically, the 4(d) rules we are making final in this document (see **Regulation Promulgation**, below) except wildfire prevention and suppression activities, fuels reduction activities related to forest management, and habitat

restoration efforts that benefit the DPSs and their habitats. Such activities are often identified in timber harvest plans required under the California Forest Practice Rules. However, because the habitat and condition of the DPSs being listed are variable and timber harvest or other timber management activities are usually site-specific, we have determined that an exception to all activities that follow the California Forest Practice Rules is not appropriate for conservation of the North Feather and Central Coast DPSs and that the current 4(d) exceptions will provide sufficient regulatory relief for forest management and fire prevention activities that benefit the species and their habitats and allow for conservation of the two threatened DPSs.

(12) Comment: A commenter provided information on current management efforts for riparian areas on the Stanislaus River in Tuolumne County and stated that these efforts are sufficient to protect the species in this area.

Our Response: We acknowledge that the habitat restoration and current management efforts identified along the Stanislaus River presented by the commenter may benefit the South Sierra DPS and its habitat. However, we are listing the South Sierra DPS due to the numerous and persistent threats across multiple drainages throughout the range of the DPS. We will take into consideration the management efforts along the Stanislaus River during any consultation on activities occurring in the area under our section 7 process, permit activities occurring under section 10 of the Act, or through other mechanisms such as our safe harbor process.

(13) Comment: A commenter presented breeding information from the North Fork of the Mokelumne River and requested the Service place guidelines on hydroperiods and require conservation measures as part of the hydropower licensing process, update rangeland management guidelines, and encourage research on the effect of hydroperiod regimes on species recovery.

Our Response: The breeding information presented by the commenter contributed to our understanding of the species' oviposition sites in the Mokelumne River watershed, and we added this information to the SSA report (Service 2023, pp. 16 and 55). However, the information does not change our position on the South Sierra DPS' status regarding listing. While we are not the lead government agency or have the decision-making authority for hydropower licenses or rangeland management, we will use our authorities under the Act to encourage Federal agencies and others (e.g., Federal Energy Regulatory Commission, U.S. Forest Service, Bureau of Land Management, nonprofit land management entities, local water management entities) to include measures in their decisions that will promote the recovery of the species.

(14) Comment: Several commenters provided additional foothill yellow-legged frog occurrence information for the Tuolumne and South Fork American River watersheds in the range of the South Sierra DPS of the foothill yellow-legged frog and stated that the additional records were evidence that foothill yellow-legged frog populations are increasing in the watersheds following voluntary implementation of a flow management regime intended to reduce impacts on aquatic species and recommended we take this information into consideration in our listing determination for the South Sierra DPS.

Our Response: The provided survey information extends our understanding of the distribution of the foothill yellow-legged frog in the Lumsden Reach of the Tuolumne River by about one-half of a river mile and our knowledge of abundance of foothill yellow-legged frogs in both the identified areas of the Tuolumne River and South Fork of the American River. As discussed in the SSA report and in our proposed rule and this final rule, alterations of stream hydrology and flows can have a large negative influence on foothill yellow-legged frog distribution, abundance, and metapopulation dynamics (Hayes et al. 2016, pp. 24–25; Yarnell et al. 2020, entire; Service 2023, figure 21, p. 77,

section 7.1). We also stated that measures taken on regulated streams to account for the foothill yellow-legged frog and its ecological needs have improved foothill yellow-legged frog habitat and persistence in some areas; however, modified flow regimes are not the only threat facing the South Sierra DPS. Other factors, including, but not limited to, the effects of climate change, habitat alteration, and nonnative predators, also are impacting the DPS and its habitat. Due to the increased attention by researchers, land and water managers, and the public to the State listing of the foothill yellow-legged frog and now this final listing rule, we expect additional information to become available regarding the distribution of the foothill yellow-legged frog, which will increase our knowledge of the status of the species. However, based on the abundance of past and current research regarding the species, we do not anticipate that this information will represent a significant change to the distribution of the species or DPSs such that it would change our determinations regarding listing. Therefore, given the range of threats impacting the South Sierra DPS of foothill yellow-legged frog and its habitat now and into the future, we continue to find that listing the DPS under the Act is warranted and finalize those determinations in this rule.

(15) Comment: A commenter expressed concerns that the geographic division between the North Sierra DPS and South Sierra DPS was based on insufficient data and that habitat on the North Fork American River in the range of the North Sierra DPS should not be split from the South Fork American River in the range of the South Sierra DPS based on presumed historical genetic connectivity between these forks of the American River.

Our Response: We identified geographic boundaries between the North Sierra DPS and South Sierra DPS along the North Fork and South Fork American Rivers. The extent and boundaries of each DPS was based on the CDFW's final status review of the species (A Status Review of the Foothill Yellow-Legged Frog (*Rana Boylii*) in California

(CDFW 2019b, entire)), except for the area for the North Coast DPS in Oregon (Service 2023, section 2.6 “Genetic Clades”) since the State’s responsibility only includes California. The information used to determine the boundaries of each DPS included genetic information from researchers that divided the species into numerous clades (McCartney-Melstad et al. 2018, entire; Peek 2018, entire). The clades in both studies were found to be deeply divergent and geographically cohesive. We used the best scientific and commercial information available to determine the location and extent of the areas for each DPS identified. Additionally, the Service reviewed the best available scientific and commercial data and concurred with the State’s geographic boundaries. The Act provides for revision of listing and critical habitat rules upon receipt of new scientific information. If the Service receives new scientific information regarding the contemporary genetic relationships or other relevant factors between populations in the North Fork and South Fork of the American River, then we will review this information and revise DPS geographic boundaries as appropriate.

(16) Comment: A commenter stated that our proposed 4(d) rule was arbitrary and capricious because we did not assess the costs and benefits of the rule and, therefore, did not establish that the proposed 4(d) rule was necessary and advisable. Additionally, the commenter stated that the proposed 4(d) rule requires analysis under the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 et seq.) and Regulatory Flexibility Act (5 U.S.C. 601 et seq.). An additional commenter stated that the proposed 4(d) rules for the North Feather DPS and Central Coast DPS should also exempt actions in compliance with California Forest Practice Rules and CDFW’s lake and streambed alteration permits, as well as livestock grazing. The commenter was concerned that listing of the species would affect timber harvest activities, water management, and pesticide applications for agriculture. The commenter stated that doing so would benefit the species.

Our Response: In 1982, Congress amended the Act to add the requirement that listing determinations are to be made solely on the basis of the best scientific and commercial data available. In the Conference Report for the 1982 amendments to the Act, Congress specifically stated that economic considerations are not to be considered in determinations regarding the status of species and that the economic analysis requirements of Executive Order 12291 and such statutes as the Regulatory Flexibility Act do not apply to any phase of determining the listing status of an entity under the Act. If we determine that a species or DPS is threatened under the Act, part of our consideration for completing the listing process is to consider what options are necessary and advisable to provide for the conservation of the species or DPS under section 4(d) of the Act. As a result, a cost benefit analysis is not part of the process required to propose or finalize a section 4(d) rule.

We are also not required to complete a NEPA analysis for section 4(d) rules promulgated at the time the species or DPS is concurrently being considered for listing, or listed, under the Act. This is because NEPA would conflict with the requirement in section 4(b) of the Act that classification decisions be made solely on the basis of the best scientific and commercial data available regarding the five factors set out in section 4(a)(1) of the Act. Applying NEPA to a concurrent section 4(d) rule could cause a similar conflict with the requirement in section 4(d) that we issue for threatened species such regulations as we deem necessary and advisable to provide for the conservation of such species. We published a notice outlining our reasons for this determination in the *Federal Register* on October 25, 1983 (48 FR 49244).

In establishing exceptions to regulations under a 4(d) rule, our guidance states that we should identify and incentivize known beneficial actions for the species, as well as rules that remove the regulatory burden on forms of take that are considered inconsequential to the conservation of the species and put in place protections that will both prevent the species

from becoming endangered and promote the recovery of species. Although the State's Forest Practice Rules and streambed alteration permitting processes may include measures to conserve foothill yellow-legged frog habitat, the activities undertaken, in some cases, may also involve more than minimal impacts on the DPSs by removing habitat or having direct or indirect impacts on individuals. As a result, we do not consider including these measures as part of our species specific 4(d) rule appropriate for the two DPSs. We find that the section 4(d) rules for the North Feather and Central Coast DPSs are necessary to provide significant benefits for conservation of the species and are not arbitrary and capricious. In the proposed rule and this final rule to list the North Feather and Central Coast DPSs as threatened, we outline our rationale and establish our reasoning on why the 4(d) rules are necessary and advisable to provide for the conservation of the two DPSs (see December 28, 2021, proposed rule at 86 FR 73939–73941 and **Determination of Status for the Foothill Yellow-Legged Frog**, below).

(17) Comment: A commenter stated that existing protections for the species under CESA are sufficient to protect the species and, therefore, regulations under the Act are not necessary.

Our Response: We were petitioned to determine the listing status of the foothill yellow-legged frog under the Act. Once we are petitioned to list a species, we are required to complete our regulatory processes regardless of any State listing determination. Although the regulations implementing protections for listed species under the CESA and the Act are similar, we cannot defer to any State listing. Under requirements of the Act, we must conduct the required analysis and list the species if it is found to be warranted.

I. Final Listing Determination

Background

Below is a brief description of the foothill yellow-legged frog, its habitat, distribution, and information regarding our determination of DPSs under our 1996 DPS policy (61 FR 4722; February 7, 1996); for a thorough discussion of the ecology and life history of the species, the species' biological and ecological needs, as well as factors influencing those needs, please see the SSA report (Service 2023, chapter 2, pp. 15–34).

Distinct Population Segment Conclusion

Our DPS policy directs us to evaluate whether populations of a species are separate from each other to the degree they qualify as discrete segments and whether those segments are significant to the remainder of the species to which it belongs. Based on an analysis of the best available scientific and commercial data, including recent genetic information and research (McCartney-Melstad et al. 2018, entire; Peek 2018, entire), we conclude that the North Feather, South Sierra, Central Coast, and South Coast clades of the foothill yellow-legged frog's range are each discrete due to their marked genetic separation. Furthermore, we conclude that each of the four clades of the foothill yellow-legged frog's range being listed are significant, based on evidence that a loss of any of the population segments would result in a significant gap in the range of the taxon and on evidence that the discrete population segments differ markedly from other populations of the species in their genetic characteristics. Therefore, we conclude that the four clades within the foothill yellow-legged frog's range being listed are both discrete and significant under our DPS policy and are, therefore, unique entities under the Act. For additional information regarding taxonomy, genetic information, and our DPS determinations according to our 1996 DPS policy (61 FR 4722; February 7, 1996), see the December 28, 2021, proposed rule (86 FR 73916–73920).

Species Information

The foothill yellow-legged frog is a small- to medium-sized stream-dwelling frog with fully webbed feet and rough pebbly skin. Coloring of the foothill yellow-legged frog

is highly variable but is usually light and dark mottled gray, olive, or brown, with variable amounts of brick red. The foothill yellow-legged frog is a stream-obligate species. Stream habitat for the species is highly variable and keyed on flow regimes. The current distribution of the four DPSs of the foothill yellow-legged frog generally follows the historical distribution of the species except with range contractions in the southern California Coast Range and southern Sierra Nevada. A map of the distribution of the four DPSs we are listing as well as the remainder of the species' range is provided in the figure below.

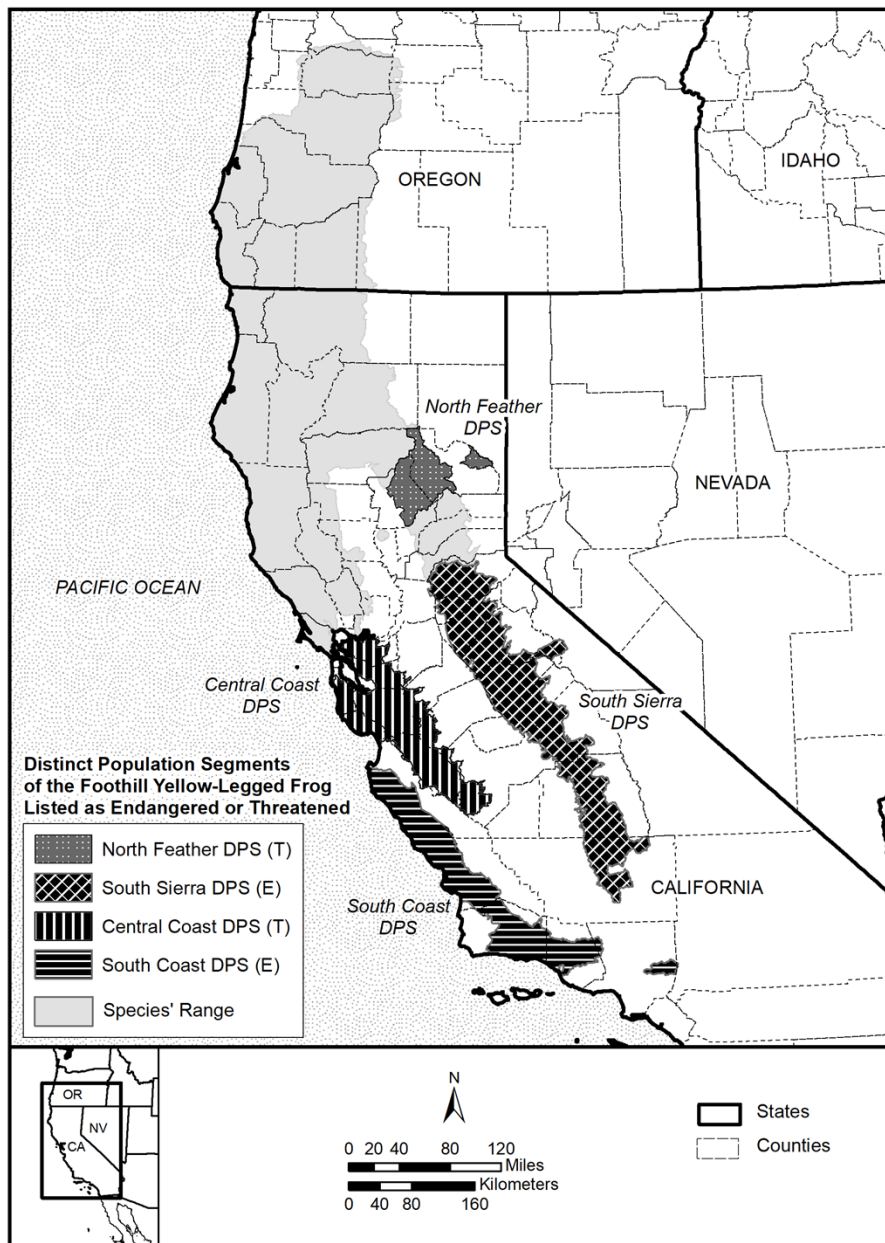


Figure: DPSs of the Foothill Yellow-Legged Frog Listed as Endangered or Threatened

Regulatory and Analytical Framework

Regulatory Framework

Section 4 of the Act (16 U.S.C. 1533) and the implementing regulations in title 50 of the Code of Federal Regulations set forth the procedures for determining whether a species is an endangered species or a threatened species, issuing protective regulations for threatened species, and designating critical habitat for endangered and threatened species. In 2019, jointly with the National Marine Fisheries Service, the Service issued a

final rule that revised the regulations in 50 CFR part 424 regarding how we add, remove, and reclassify endangered and threatened species and the criteria for designating listed species' critical habitat (84 FR 45020; August 27, 2019). On the same day, the Service also issued final regulations that, for species listed as threatened species after September 26, 2019, eliminated the Service's general protective regulations automatically applying to threatened species the prohibitions that section 9 of the Act applies to endangered species (84 FR 44753; August 27, 2019).

The Act defines an "endangered species" as a species that is in danger of extinction throughout all or a significant portion of its range, and a "threatened species" as a species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The Act requires that we determine whether any species is an endangered species or a threatened species because of any of the following factors:

- (A) The present or threatened destruction, modification, or curtailment of its habitat or range;
- (B) Overutilization for commercial, recreational, scientific, or educational purposes;
- (C) Disease or predation;
- (D) The inadequacy of existing regulatory mechanisms; or
- (E) Other natural or manmade factors affecting its continued existence.

These factors represent broad categories of natural or human-caused actions or conditions that could have an effect on a species' continued existence. In evaluating these actions and conditions, we look for those that may have a negative effect on individuals of the species, as well as other actions or conditions that may ameliorate any negative effects or may have positive effects.

We use the term “threat” to refer in general to actions or conditions that are known to or are reasonably likely to negatively affect individuals of a species. The term “threat” includes actions or conditions that have a direct impact on individuals (direct impacts), as well as those that affect individuals through alteration of their habitat or required resources (stressors). The term “threat” may encompass—either together or separately—the source of the action or condition or the action or condition itself.

However, the mere identification of any threat(s) does not necessarily mean that the species meets the statutory definition of an “endangered species” or a “threatened species.” In determining whether a species meets either definition, we must evaluate all identified threats by considering the species’ expected response and the effects of the threats—in light of those actions and conditions that will ameliorate the threats—on an individual, population, and species level. We evaluate each threat and its expected effects on the species, then analyze the cumulative effect of all of the threats on the species as a whole. We also consider the cumulative effect of the threats in light of those actions and conditions that will have positive effects on the species, such as any existing regulatory mechanisms or conservation efforts. The Secretary determines whether the species meets the definition of an “endangered species” or a “threatened species” only after conducting this cumulative analysis and describing the expected effect on the species now and in the foreseeable future.

The Act does not define the term “foreseeable future,” which appears in the statutory definition of “threatened species.” Our implementing regulations at 50 CFR 424.11(d) set forth a framework for evaluating the foreseeable future on a case-by-case basis. The term “foreseeable future” extends only so far into the future as the Service can reasonably determine that both the future threats and the species’ responses to those threats are likely. In other words, the foreseeable future is the period of time in which we can make reliable predictions. “Reliable” does not mean “certain”; it means sufficient to

provide a reasonable degree of confidence in the prediction. Thus, a prediction is reliable if it is reasonable to depend on it when making decisions.

It is not always possible or necessary to define foreseeable future as a particular number of years. Analysis of the foreseeable future uses the best scientific and commercial data available and should consider the timeframes applicable to the relevant threats and to the species' likely responses to those threats in view of its life-history characteristics. Data that are typically relevant to assessing the species' biological response include species-specific factors such as lifespan, reproductive rates or productivity, certain behaviors, and other demographic factors.

Analytical Framework

The SSA report documents the results of our comprehensive biological review of the best scientific and commercial data regarding the status of the species, including an assessment of the potential threats to the species. The SSA report does not represent our decision on whether the species should be listed as an endangered or threatened species under the Act. However, it does provide the scientific basis that informs our regulatory decisions, which involve the further application of standards within the Act and its implementing regulations and policies.

To assess the viability of the four DPSs of the foothill yellow-legged frog (North Feather, South Sierra, Central Coast, and South Coast), we used the three conservation biology principles of resiliency, redundancy, and representation (Shaffer and Stein 2000, pp. 306–310). Briefly, resiliency is the ability of each DPS to withstand environmental and demographic stochasticity (for example, wet or dry, warm or cold years), redundancy is the ability of each DPS to withstand catastrophic events (for example, droughts, large pollution events), and representation is the ability of each DPS to adapt over time to both near-term and long-term changes in its physical and biological environment (for example, climate conditions, pathogens). In general, DPS viability will increase with increases in

resiliency, redundancy, and representation (Smith et al. 2018, p. 306). Using these principles, we identified each DPS's ecological requirements for survival and reproduction at the individual, population, and DPS level, and described the beneficial and risk factors influencing each DPS's viability.

The SSA process can be categorized into three sequential stages. During the first stage, we evaluated each individual DPS's life-history needs. The next stage involved an assessment of the historical and current condition of each DPS's demographics and habitat characteristics, including an explanation of how each of the DPSs arrived at its current condition. The final stage of the SSA involved making predictions about each DPS's response to positive and negative environmental and anthropogenic influences. Throughout all of these stages, we used the best available information to characterize viability as the ability of the DPSs to sustain themselves in the wild over time. We use this information to inform our regulatory decisions.

The following is a summary of the key results and conclusions from the SSA report; the full SSA report can be found at Docket FWS-R8-ES-2021-0108 on <https://www.regulations.gov> and from the Sacramento Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**).

Summary of Biological Status and Threats

In this discussion, we review the biological condition of each of the four DPSs (North Feather, South Sierra, Central Coast, and South Coast) and their resources, and the influences on viability for each of the four DPS's current and future condition, in order to assess each of the four DPS's overall viability and the risks to that viability.

We note that, by using the SSA framework to guide our analysis of the scientific information documented in the SSA report, we have not only analyzed individual effects on each of the four DPSs, but we have also analyzed their potential cumulative effects. We incorporate the cumulative effects into our SSA analysis when we characterize the

current and future condition of each of the four DPSs. To assess the current and future condition of each of the four DPSs, we undertake an iterative analysis that encompasses and incorporates the threats individually and then accumulates and evaluates the effects of all the factors that may be influencing each of the four DPSs, including threats and conservation efforts. Because the SSA framework considers not just the presence of the factors, but to what degree they collectively influence risk to each of the four DPSs in their entirety, our assessment integrates the cumulative effects of the factors and replaces a standalone cumulative effects analysis.

Species Needs

Stream Habitat

The foothill yellow-legged frog is a stream-obligate species and is primarily observed in or along the edges of streams (Zweifel 1955, p. 221; Kupferberg 1996a, p. 1339). Most foothill yellow-legged frogs breed along mainstem water channels and overwinter along smaller tributaries of the mainstem channel (Kupferberg 1996a, p. 1339; GANDA 2008, p. 20). Habitat within the stream includes rocky substrate mostly free of sediments with interstitial spaces to allow for predator avoidance. Stream morphology is a strong predictor of breeding habitat because it creates the microhabitat conditions required for successful oviposition (i.e., egg-laying), hatching, growth, and metamorphosis. Foothill yellow-legged frogs that overwinter along tributaries often congregate at the same breeding locations along the mainstem each year (Kupferberg 1996a, p. 1334; Wheeler and Welsh 2008, p. 128). During the nonbreeding season, the smaller tributaries, some of which may only flow during the wet winter season, provide refuge while the larger breeding channels may experience overbank flooding and high flows (Kupferberg 1996a, p. 1339). Habitat elements that provide both refuge from winter peak flows and adequate moisture for foothill yellow-legged frogs include pools,

springs, seeps, submerged root wads, undercut banks, and large boulders or debris at high-water lines (van Wagner 1996, pp. 74–75, 111; Rombough 2006b, p. 159).

The streams occupied by foothill yellow-legged frogs occur in a wide variety of vegetation types including valley-foothill hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, ponderosa pine, mixed conifer, mixed chaparral, and wet meadow (Hayes et al. 2016, p. 5). The extensive range of habitat types used by the foothill yellow-legged frog demonstrates the species' non-specificity in regard to vegetation type and macroclimate of the species' terrestrial habitat component. While habitat conditions can be vastly different among these stream sizes, and across the species' geographic range, only a narrow range of abiotic conditions are tolerated by early life stages (i.e., eggs, tadpoles, and metamorphs) (Kupferberg 1996a, p. 1336; Bondi et al. 2013, p. 101; Lind et al. 2016, p. 263; Catenazzi and Kupferberg 2018, pp. 1044–1045). The abiotic conditions that directly influence the success of early life stages are those associated with stream velocity, water depth, water temperature, and streambed substrate. Foothill yellow-legged frogs also require stream flow regimes to have or mimic natural flow patterns, which includes high winter flows with a slowly diminishing hydrograph with increasing water temperature and decreasing flows into the spring and summer. Higher winter flows can maintain and/or increase breeding habitat by widening and diversifying channel morphology, improving rocky substrate conditions, and increasing sunlight (Lind et al. 1996, pp. 64–65; Lind et al. 2016, p. 269; Power et al. 2016, p. 719). The reduction in flows and increasing water temperatures are also cues to initiate breeding. As a result, foothill yellow-legged frogs rely on natural, predictable changes during the hydrological cycle to optimize early life-stage growth and survival (Kupferberg 1996a, p. 1332; Bondi et al. 2013, p. 100).

Food Resources

During their lifecycle, foothill yellow-legged frogs feed on a variety of plants and animals. During early development, food sources include algae, diatoms, and detritus that are scraped from submerged rocks and vegetation (Ashton et al. 1997, p. 7; Fellers 2005, p. 535). Juvenile and adult foothill yellow-legged frogs prey upon many types of aquatic and terrestrial invertebrates including snails, moths, flies, water striders, beetles, grasshoppers, hornets, and ants (Nussbaum et al. 1983, p. 165).

Migration/Dispersal Routes and Connectivity

Adult foothill yellow-legged frogs primarily use waterway corridors to migrate or disperse (Bourque 2008, p. 70) and make their movements over multiple days (GANDA 2008, p. 22). While most foothill yellow-legged frogs are found in, or very close to, water, juveniles and adults have also been observed moving through upland areas along intermittent drainages or in moist habitat outside of riparian corridors (Service 2023, section 4.8 “Upland and Tributary (Nonbreeding) Habitat”, pp. 64–65). The habitat characteristics needed by foothill yellow-legged frogs for migration and dispersal are largely the same as they are for upland and tributary habitat. However, movement routes do not need to be moist for extended periods. Routes need to connect breeding areas and overwintering habitat without exposing frogs to large physical barriers (e.g., roads, development, reservoirs) or a high risk of predation. These migration and dispersal routes provide for metapopulation connectivity and allow for ease of mobility (for post-metamorphic frogs) within a metapopulation and between different metapopulations. Both breeding/rearing and overwintering sites need to be distributed across the metapopulation area. Foothill yellow-legged frog occupancy (i.e., presence of breeding adults in a given area) must also be well distributed, such that dispersers are able to repopulate extirpated areas of the metapopulation. A sufficiently resilient foothill yellow-legged frog metapopulation should have a network of quality breeding/rearing sites (often on or near the mainstem channel) and overwintering sites (often on tributaries of the

mainstem) that are connected by habitat suitable for migration and dispersal (Service 2023, p. 65). An in-depth discussion of habitat and population elements required for the foothill yellow-legged frog is in the SSA report (Service 2023, chapters 4 and 5, pp. 52–70).

Threats Influencing Current and Future Condition

Below are summary evaluations of the threats analyzed in the SSA report for the foothill yellow-legged frog. The discussion focuses on those threats impacting the North Feather, South Sierra, Central Coast, and South Coast DPSs. The specific threats associated with each DPS we identified for listing under the Act are identified in the status discussion for each appropriate DPS below and in the SSA report (Service 2023, chapter 7, pp. 74–126).

Those threats having the greatest impacts on the species or its habitat include: Altered stream hydrology and flow regimes (Factor A) associated with dams, surface water diversions, and channel modifications or alterations and their impact on the species and its habitat; predation and resource competition from nonnative species (Factor C and Factor E, respectively), such as American bullfrogs (*Lithobates catesbeianus*), smallmouth bass (*Micropterus dolomieu*), and crayfish species (*Pacifastacus* spp.); disease (Factor C); habitat degradation, loss, and fragmentation associated with wildfire (Factor A); the effects of climate change, including increased temperatures, drying and drought, and extreme flood events (Factor E); habitat modification and altered hydrology as a result of conservation efforts for salmonid species (colder water temperatures, timing and intensity of water flows) (Factor E); other habitat loss, degradation, and fragmentation (Factor A) or direct negative effects to individuals (Factor E) from nonnative fauna (i.e., invasive algae such as *Didymosphenia geminata*) or other anthropogenic activities such as agriculture, mining, urbanization, roads, and recreation.

Within our threat discussion, we also evaluate existing regulatory mechanisms (Factor D) and ongoing conservation measures that may ameliorate threat impacts on the four DPSs.

Livestock grazing and timber harvest were discussed as potential threats and potential beneficial influences in the recent status assessment for the foothill yellow-legged frog in California (California Department of Fish and Wildlife (CDFW) 2019b, pp. 64–65, 67). These activities were also considered in the conservation assessment developed by the Forest Service and BLM as part of their sensitive species program for the species in Oregon (Olson and Davis 2009, pp. 18–20). While there is potential for harm to the species (e.g., when grazing and timber practices cause excessive erosion and sedimentation into streams), there are also potential positive benefits to foothill yellow-legged frog habitat from these practices (Olson and Davis 2009, pp. 18–20; CDFW 2019b, pp. 64–65, 67). We captured and evaluated the potential negative impacts associated with grazing and timber harvest (e.g., water impoundments for cattle, erosion, logging roads) in our assessment of altered hydrology, sedimentation, and roads. For full descriptions of all threats and how they impact the species, please see the SSA report (Service 2023, pp. 74–126).

Altered Stream Hydrology and Flow Regimes

Foothill yellow-legged frog ecology and habitat needs are closely tied to the natural hydrological cycle of the streams they inhabit. Foothill yellow-legged frog breeding and recruitment are dependent upon specific stream morphologies and upon predictable hydrological patterns that are synchronized with other climatic cues for foothill yellow-frog populations to be successful (Kupferberg 1996a, p. 1337). Strong stream flow events typical during winter under natural flow regimes help maintain and create foothill yellow-legged frog breeding habitat by widening and diversifying channel morphology, improving rocky substrate conditions, removing sediment and algal growth from rocky substrate, and increasing sunlight by limiting vegetation encroachment (Lind

et al. 1996, pp. 64–65; Lind et al. 2016, p. 269; Power et al. 2016, p. 719; GANDA 2018, pp. 37–38). Dams, water management, and other waterway modifications alter the hydrology, timing, temperature, and morphology of foothill yellow-legged frog stream habitat (Service 2023, pp. 76–80). Alterations to flow regimes also occur for hydropeaking (for energy production) and recreational activities, such as spring and summer releases for whitewater boating (Kupferberg et al. 2012, p. 518) (see *Recreational Activities*, below). These pulse flows are generally much greater in frequency and intensity as compared to other flow fluctuations and, during spring and summer, can detrimentally affect early life stages of foothill yellow-legged frog during breeding and rearing season (Greimel et al. 2018, p. 92, Kupferberg et al. 2009c, p. ix; Kupferberg et al. 2011b, p. 144). Therefore, alterations of stream hydrology and flows can have a large influence on foothill yellow-legged frog distribution and metapopulation dynamics (Hayes et al. 2016, pp. 24–25; Service 2023, figure 21, p. 77).

The effects of altered streams also impede foothill yellow-legged frog dispersal and metapopulation connectivity, which can prevent recolonization of extirpated areas and cause genetic bottlenecks (Peek 2010, p. 44; Peek 2012, p. 15). Genetic comparisons among subpopulations demonstrated that gene flow is decreased in regulated river systems, even when the amount of regulation is low (Peek 2012, p. 15; Peek et al. 2021, p. 14).

Many population declines across the foothill yellow-legged frog's range have been attributed to the altered flow regimes and habitat fragmentation associated with water storage and hydropower dams (Kupferberg et al. 2009c, p. ix). Where populations of foothill yellow-legged frogs persist in these areas, breeding population densities were more than five times smaller below dams than in free-flowing rivers (based on breeding populations in the North Coast DPS, North Feather DPS, and Central Coast DPS) (Kupferberg et al. 2012, p. 520). Dams and impoundments have also presumably caused

localized extirpations of the species and altered stream characteristics in some locations (Miller 2010, pp. 14, 61–63, 70–71, table 2.9; Linnell and Davis 2021, not paginated, figures 6 and 7).

Some measures have been implemented to reduce the threat of altered flow regimes on regulated streams. In 2001, the Federal Energy Regulatory Commission (FERC) issued an order to the licensee responsible for flow regulation on the Cresta and Poe reaches of the North Feather River (Rock Creek–Cresta Hydroelectric Project (FERC Project No. 1962) Pacific Gas and Electric Company (PG&E)). The order requires PG&E to develop a plan to ensure recreational and pulse flow releases do not negatively impact the foothill yellow-legged frog. The order also requires the establishment of an Ecological Resources Committee (ERC) to evaluate effects of flows and provide adaptive management strategies if flows had a negative impact on the foothill yellow-legged frog populations within the two reaches. In 2006, flow releases for recreational boating were discontinued on the Cresta reach due to possible impacts from flows resulting in low foothill yellow-legged frog egg masses that year. In 2009 and again in 2014, modified flow programs were implemented to mimic natural flow regimes by reducing flows in spring and summer (April through the foothill yellow-legged frog’s breeding season) (GANDA 2018, pp. 1–2). We expect these measures to continue in accordance with the adaptive management strategies implemented under the ERC based on ongoing monitoring of the two reaches. As a result, there are some signs of improved abundance since 2018 in at least the Cresta reach of the North Feather River following the above-described modifications of the regulated flow regime to more natural conditions.

Altered flow regimes and water diversions (as well as several anthropogenic activities, such as mining, agriculture, overgrazing, timber harvest, and poorly constructed roads), as described in greater detail below, can cause or increase sedimentation in breeding habitat for the foothill yellow-legged frog (Moyle and Randall

1998, pp. 1324–1325). Increased sedimentation can increase turbidity, impact algae and other food resources, or impede foothill yellow-legged frog egg mass attachment to substrate (Cordone and Kelley 1961, pp. 191–192; Ashton et al. 1997, p. 13). Fine sediments can also fill interstitial spaces between rocks, which provide shelter from high velocity flows, cover from predators, and sources of aquatic invertebrate prey (Harvey and Lisle 1998, pp. 12–14; Olson and Davis 2009, p. 11; Kupferberg et al. 2011b, pp. 147–149). The nonnative algae (*Didymosphenia geminata*) has also been associated with areas below dams and causes impacts to food resources and alters habitat conditions by forming thick algal mats on rocky substrate within foothill yellow-legged frog habitat (Spaulding and Elwell 2007, entire; Furey et al. 2014, pp. 8–10).

Predation

Foothill yellow-legged frogs can be negatively affected by several native and nonnative animal species. The American bullfrog, native and nonnative fish, and nonnative crayfish have all been linked to impacting populations of foothill yellow-legged frogs (Olson and Davis 2009, pp. 17–18; Hayes et al. 2016, pp. 49–51). The following discussion provides details on how these predatory species affect the foothill yellow-legged frog at various life stages through predation and competition.

American bullfrogs: American bullfrogs are considered a threat to all four DPSs. Bullfrogs affect foothill yellow-legged frog populations in several ways because they are simultaneously competitors, predators, and disease vectors, and they impact life stages from tadpoles to adults (see figure 23 in the SSA report, Service 2023, p. 81). Bullfrogs impact foothill yellow-legged frogs by direct predation (Crayon 1998, p. 232; Hothem et al. 2009, pp. 279–280) and indirectly by reducing survival. In one experiment, the presence of bullfrog tadpoles reduced foothill yellow-legged frog tadpole survival by 48 percent and mass at metamorphosis by 24 percent (Kupferberg 1997, p. 1736). Additionally, the algal and macroinvertebrate assemblages available to foothill yellow-

legged frogs were significantly reduced due to the presence of bullfrog tadpoles (Kupferberg 1996b, p. 2; Kupferberg 1997, p. 1736), which would negatively affect food sources for foothill yellow-legged frog tadpoles, juveniles, and adults. The spread of bullfrogs is facilitated by altered hydrology, land-use change, drought, and increasing water temperatures (Moyle 1973, p. 21; Fuller et al. 2011, pp. 210–211; Adams et al. 2017a, p. 13).

Fish: Fish such as smallmouth bass, green sunfish (*Lepomis cyanellus*), mosquitofish (*Gambusia affinis*), and trout (*Oncorhynchus*, *Salmo*, and *Salvelinus* spp.) are predators of foothill yellow-legged frogs and may also potentially compete with them for invertebrate food resources (Hayes et al. 2016, p. 51). However, of these fish, smallmouth bass are the greatest threat to foothill yellow-legged frogs. Adult smallmouth bass consume amphibian tadpoles (Kiesecker and Blaustein 1998, pp. 776–787), as well as foothill yellow-legged frog tadpoles and adults (Rombough 2006a, unpaginated; Paoletti et al. 2011, p. 166). The distribution of smallmouth bass in California includes the entire South Coast DPS, lower elevation areas of the South Sierra and North Feather DPSs in the Central and Sacramento Valleys, and areas in the Central Coast DPS's range in the Salinas and Santa Clara Valleys.

Nonnative crayfish: Several nonnative crayfish species prey upon early life stages of foothill yellow-legged frog. The signal crayfish (*Pacifastacus leniusculus*) has been introduced into several areas within the coast ranges of northern California and the Sierra Nevada (Wiseman et al. 2005, p. 162; Pintor et al. 2009, p. 582; CDFW 2019b, p. 56). The signal crayfish preys upon foothill yellow-legged frog egg masses, and likely contributes to dislodging egg masses from substrate, potentially allowing them to be transported to unsuitable habitat (Rombough and Hayes 2005, p. 163; Wiseman et al. 2005, p. 162). Signal crayfish also prey on foothill yellow-legged frog tadpoles in laboratory settings (Kerby and Sih 2015, p. 266), and observations of tail injuries in wild

tadpoles suggest crayfish predation also occurs in the wild (Rombough and Hayes 2005, p. 163; Wiseman et al. 2005, p. 162).

Disease

Foothill yellow-legged frogs can be negatively affected by amphibian chytrid fungus (*Batrachochytrium dendrobatidis* (Bd)), parasitic copepods, and *Saprolegnia* fungus (see figure 24 in the SSA report, Service 2023, p. 84).

Bd is implicated in the declines or presumed extinctions of hundreds of amphibian species (Scheele et al. 2019, p. 1). The spread of Bd in the range of the foothill yellow-legged frog is presumably linked to increased human use of habitat and the introduction of nonnative bullfrogs, which are Bd reservoir hosts (Huss et al. 2013, p. 341; Adams et al. 2017b, pp. 10225–10226; Yap et al. 2018, pp. 1–2; Byrne et al. 2019, p. 20386). The southern California precipitation regime (i.e., alternation of extreme droughts and floods) may increase the likelihood of disease outbreaks by causing favorable habitat conditions for bullfrogs, warmer water temperatures, and increased stress on foothill yellow-legged frogs (Adams et al. 2017b, p. 10228). Bullfrog presence is a positive predictor of Bd prevalence and load in foothill yellow-legged frogs (Adams et al. 2017a, p. 1). The Bd pathogen has been documented within all four DPSs (Yap et al. 2018, p. 5, figure 1), and evidence of Bd prevalence suggests that Bd played a role in the precipitous decline of the foothill yellow-legged frog in southern California. Bd has been implicated in the decline of the foothill yellow-legged frog in both the Central Coast DPS and South Coast DPS (Adams et al. 2017b, p. 10224). Bd may also have sublethal effects on foothill yellow-legged frogs. Foothill yellow-legged frogs that tested positive for Bd had lower body mass to length ratios, although the frogs showed no other signs of infection (Lowe 2009, pp. 180–181). Tadpole susceptibility experiments with other western anurans documented species-specific effects of Bd exposure such as tadpole lethargy (motionless

at bottom of tank), disorientation, weak response to prodding, and increased incidence of tadpole mouthpart deformities (Blaustein et al. 2005, pp. 1464–1466).

Parasitism of foothill yellow-legged frogs by the Eurasian copepod, *Lernaea cyprinacea*, is linked to malformations in tadpole and juvenile foothill yellow-legged frogs (Kupferberg et al. 2009a, p. 529). In addition to malformations, this parasite likely has other sublethal effects on foothill yellow-legged frogs, such as stunted growth (Kupferberg et al. 2009a, p. 529). Although direct foothill yellow-legged frog mortality from this parasite has not been documented in the wild, copepod parasitism may be responsible for mortality of tadpoles in captivity (Kupferberg 2019, entire; Oakland Zoo 2019, p. 1; Rousser 2019, entire). The changes predicted by climate change models (i.e., increased summer water temperatures and decreased daily discharge) may promote outbreaks of this parasite throughout the foothill yellow-legged frog's range (Kupferberg et al. 2009a, p. 529).

The water fungus (*Saprolegnia* sp.) causes egg mortality in amphibians of the Pacific Northwest (Blaustein et al. 1994, p. 251). Fungal infections of foothill yellow-legged frog egg masses, potentially from *Saprolegnia* but not confirmed, have been observed in the mainstem Trinity River (North Coast DPS) (Ashton et al. 1997, pp. 13–14), in approximately 25 percent of egg masses during a study in the South Fork Eel River (North Coast DPS) (Kupferberg 1996a, p. 1337), and in 14 percent of egg masses during 2002 and nearly 50 percent of egg masses during 2003 in the Cresta reach of the North Fork Feather River (North Feather DPS) (GANDA 2004, p. 55). While fungal infections are not a major source of mortality for foothill yellow-legged frogs, this threat has had a strong effect in other amphibian populations (Blaustein et al. 1994, pp. 251–253).

Habitat Loss, Degradation, and Fragmentation

Habitat loss, degradation, and fragmentation occurs throughout the species' range and is attributed to numerous factors including agricultural activities, mining, urbanization, roads, recreation, and wildfire.

Agriculture/Pesticides: Agriculture is a source of threats to the foothill yellow-legged frog because of agriculture's role in habitat degradation, the contribution of pesticides and pollutants to the environment, and its role as a driver of other threats such as altered hydrology and spread of nonnative species (see figure 26 in the SSA report, Service 2023, p. 89). Agricultural land uses have been linked to declines in foothill yellow-legged frog populations due to the impacts described above (Davidson et al. 2002, p. 1597; Lind 2005, pp. 19, 51, 62, table 2.2; CDFW 2019b, p. 58). Foothill yellow-legged frog presence is negatively associated with agriculture within 5 kilometers (km) (3.1 miles (mi)) (Olson and Davis 2009, pp. 15, 22; Linnell and Davis 2021, not paginated, figures 6 and 7).

The proximity of foothill yellow-legged frog habitat downwind of the San Joaquin Valley (greatest use of airborne pesticides) suggests that foothill yellow-legged frog declines in the South Sierra unit may be linked to agricultural pesticide use (Davidson et al. 2002, p. 1594; Davidson 2004, pp. 1900–1901; Bradford et al. 2011, p. 690). Water samples from low elevations in the Sierra Nevada have had concentrations of pesticides that were within the lethal range for foothill yellow-legged frogs (Bradford et al. 2011, p. 690). Foothill yellow-legged frog tadpoles are especially vulnerable to pesticides, especially if pesticide exposure occurs in the presence of other threats, such as competition or predation (Davidson et al. 2007, entire; Sparling and Fellers 2007, entire; Sparling and Fellers 2009, entire; Kerby and Sih 2015, entire). Impacts from pesticides include reduced body size, slower development rate, and increased time to metamorphosis, as well as decreased development of natural anti-microbial skin peptides

(presumably a defense against the disease, chytridiomycosis) (Davidson et al. 2007, p. 1774; Sparling and Fellers 2009, pp. 1698, 1701; Kerby and Sih 2015, pp. 255, 260).

Trespass Cannabis Cultivation: Trespass cannabis cultivation (illegally establishing largescale cannabis farms) occurs throughout the species' range, but the Central Coast and South Coast DPSs may be most at risk from this threat (CDFW 2019b, pp. 61–62). These unregulated activities impact the foothill yellow-legged frog by destroying or degrading habitat, increasing water diversion, increasing sedimentation, and introducing pesticides and other chemicals that reduce water quality and impact the species (Bauer et al. 2015, entire; National Marijuana Initiative 2020, pp. 50–60, 68–75).

Mining Activities: Mining activities, including aggregate, hard-rock, and suction-dredge mining, are sources of threats to the foothill yellow-legged frog habitat because of their role in habitat destruction and degradation, pollution, and expansion of nonnative species (Hayes et al. 2016, pp. 52–54; Service 2023, figure 29, p. 96). Hydraulic mining, although outlawed, has had and continues to have long-lasting legacy effects and is still affecting aquatic ecosystems in California, with the North Feather DPS being the most impacted (Hayes et al. 2016, pp. 52–54; CDFW 2019b, pp. 57–58). The immediate and legacy effects and extent of mining practices are outlined in table 8 of the SSA report (Service 2023, pp. 93–96), and include habitat destruction and alteration, sedimentation, changes in stream morphology, decreased stream heterogeneity, creation of ponded habitat (that supports nonnative species), decreased water quality, and contamination. A moratorium of suction-dredging in streams is currently in place for California. However, the State is currently developing new guidance and permitting processes for potentially reinitiating suction-dredging activities (State Water Resources Control Board 2020, entire).

Urbanization: Urbanization (development and roads) can affect foothill yellow-legged frogs and their habitat through direct mortality and from habitat destruction,

degradation, and fragmentation. Urbanization can also contribute to increased occurrence of pesticides and pollutants being introduced to the environment, contribute to increases in other threats such as altered hydrology and introduction and spread of nonnative species, and assist in disease transmission (see figure 30 in the SSA report, Service 2023, p. 97). Conversion or alteration of natural habitats for urban land uses has been linked to declines in foothill yellow-legged frog populations (Davidson et al. 2002, p. 1597; Lind 2005, pp. 19, 51, 62, table 2.2). Foothill yellow-legged frog presence is negatively associated with cities and road density (Davidson et al. 2002, p. 1594; Olson and Davis 2009, p. 22). Increases in urbanization and roads have been reportedly associated with foothill yellow-legged frog extirpations in the South Coast DPS, possibly by facilitating the spread of Bd and nonnative species (Adams et al. 2017b, p. 10227).

Recreational Activities: Some recreational activities can affect foothill yellow-legged frogs in a variety of ways, depending on the region and type of recreation. Impacts from recreation can be localized, such as trampling or dislodging of egg masses, while others are greater in extent or contribute to other threats. These greater threats include off-highway vehicle use causing habitat degradation and increased sedimentation (Olson and Davis 2009, p. 23), nonnative sportfish stocking of smallmouth bass (see “Predation,” above) (CDFW 2019a, entire), and altered hydrology due to whitewater boating (Borisenko and Hayes 1999, pp. 18, 28; Kupferberg et al. 2012, p. 518). Some dam operations include planned, short pulse flows during the spring and summer to specifically provide recreation opportunities for whitewater boaters (Kupferberg et al. 2012, p. 518). As with other impacts associated with water management, the timing of these strong unseasonal flows has coincided with the foothill yellow-legged frog breeding and rearing season, leading to negative population-level impacts in the North Feather DPS (Kupferberg et al. 2012, pp. 518, 520–521, figure 3b).

Wildfire: Wildfire is a natural phenomenon throughout the range of the foothill yellow-legged frog, and its occurrence and severity are positively influenced by urbanization, roads, recreation, and the effects of climate change. The effects on foothill yellow-legged frogs from wildfire and its suppression are not well understood and have not been directly studied (Hayes et al. 2016, p. 35, table 6; CDFW 2019b, p. 71). The impacts of wildfire are also a function of the severity and intensity of the wildfire, which can be extremely variable across the landscape depending on topography and vegetation. Anecdotally, foothill yellow-legged frog populations have survived low- to moderate-severity wildfires (Lind et al. 2003, p. 27; CDFW 2019b, p. 71), and it is suspected that low-severity fires do not have adverse effects on the foothill yellow-legged frog (Olson and Davis 2009, p. 24). In fact, wildfires may benefit habitat quality by decreasing canopy cover and increasing habitat heterogeneity (Pilliod et al. 2003, pp. 171, 173; Olson and Davis 2009, p. 24). Direct mortality from scorching is unlikely, given the species' aquatic nature and the sightings of foothill yellow-legged frogs immediately after wildfires (CDFW 2019b, p. 71). In contrast, high-severity wildfires can greatly alter water and habitat quality, remove all vegetative canopy, and reduce habitat heterogeneity by burning vegetative and woody debris that foothill yellow-legged frogs use for shelter. Short- and long-term effects of severe wildfires include potentially harmful changes in water chemistry and increased erosion and sedimentation from flooding (CDFW 2019b, pp. 71–72), which can destroy or degrade breeding habitat and interstitial spaces. Furthermore, the use of fire retardants and suppressants during wildland firefighting can affect amphibians by harming water quality and by direct toxicity to amphibians and their food sources (Pilliod et al. 2003, pp. 174–175; Service 2018, pp. 42–44). See the SSA report for additional information regarding trends and impacts of wildfire (Service 2023, section 7.9, pp. 103–113).

The effects of climate change are already having impacts in the areas occupied by the four DPSs in California (Bedsworth et al. 2018, p. 13; Mote et al. 2019, p. ii, summary). Overall trends in climate conditions across the foothill yellow-legged frog's range include increasing temperatures; greater proportion of precipitation falling as rain instead of snow; earlier snowmelt (influencing streamflow); and increased frequency, duration, and severity of extreme events such as droughts, heat waves, wildfires, and floods (Public Policy Institute of California 2020, not paginated). A rangewide study of occupancy found that foothill yellow-legged frog presence is negatively related to the frequency of dry years and to precipitation variability, suggesting that the species may already be declining due to the effects from climate change (Lind 2005, p. 20).

Projected increases in temperature are likely to affect foothill yellow-legged frogs differently in different parts of the range. Warming temperatures are likely to have some positive effects in areas where stream temperatures are typically colder, allowing for greater foothill yellow-legged frog population growth rates and early life stage survival (Kupferberg et al. 2011a, p. 72; Rose et al. 2020, p. 41). However, researchers observed an unexpected die-off (unknown cause) of late-stage tadpoles that coincided with maximum daily temperatures exceeding 25 degrees Celsius (°C) (77 degrees Fahrenheit (°F)) (Kupferberg et al. 2011a, pp. 14, 58; Catenazzi and Kupferberg 2018, pp. 43–44, figure 2). Temperatures greater than the preferred thermal range may also have lethal or sublethal effects on tadpoles and metamorphs from parasites (Kupferberg et al. 2009a, p. 529; Kupferberg et al. 2011a, p. 15). There may be additional negative consequences to rising stream temperatures, even where temperatures are currently cold. Increasing temperatures may facilitate colonization by nonnative species (Fuller et al. 2011, pp. 210–211; Kiernan et al. 2012, pp. 1480–1481). Bd prevalence in bullfrogs was also found to be greater when water temperature was warmer than 17 °C (63 °F) (Adams et al. 2017a, pp. 12–13).

In California, a 25 to 100 percent increase in the frequency of extreme dry-to-wet precipitation events (such as that of the 2012–2016 drought followed by the extremely wet winter of 2016–2017) is projected during the 21st century (Swain et al. 2018, p. 427). This information indicates that the threats of drought and extreme flood events may increase by 25 to 100 percent in California. In order to assess future conditions, including future climatic conditions for the foothill yellow-legged frog, we developed a population viability analysis (PVA) (Rose et al. 2020, entire) that used climate and habitat change information consistent with current emission estimates such as those identified as representative concentration pathway (RCP) 4.5 and RCP 8.5 (see “Population Viability Analysis,” below).

The projected changes in temperature, precipitation, and climate variability may exacerbate the effects of other threats on the foothill yellow-legged frog (Service 2023, figure 46, p. 120). The potential interactions (between climate change effects and other threats) that can negatively affect the foothill yellow-legged frog include:

- An increased risk to human safety from flooding and increased risk of water shortages may necessitate more hydrological alterations (e.g., dams, surface-water diversions, changes to water releases, and channel modifications). By mid-century, the projected increases in watersheds experiencing climate-induced water stress in California ranges from 5 to 30 percent, with the South Sierra DPS experiencing the greatest amount of change (Averyt et al. 2013, p. 7, figure 7).
- Increased frequency of drought, decreased spring/summer streamflow, and warmer water temperature may benefit nonnative predators and competitors such as bullfrogs and nonnative fish (Brown and Ford 2002, pp. 332, 338–340, figure 3; Fuller et al. 2011, pp. 210–211; Adams et al. 2017a, p. 13).
- Increased summer water temperatures and/or decreased daily stream discharge and other increases in climate variability are expected to increase copepod parasitism in

foothill yellow-legged frogs (Kupferberg et al. 2009a, p. 529) or exacerbate the effects of disease outbreaks (Raffel et al. 2013, p. 147; Adams et al. 2017b, p. 10228).

- Observed and projected trends toward warmer and drier wildfire seasons in the western United States are likely to continue the trend toward higher-severity wildfires and larger burn areas (Parks and Abatzoglou 2020, pp. 1, 5–6). This would result in additional loss, degradation, fragmentation, and alteration of habitat, and secondary impacts from increased sedimentation and flooding for the foothill yellow-legged frog across its range.

Competing Conservation Interests

Many of the conservation activities that support native salmonid fishes (e.g., natural flow management, prevention of sedimentation) have positive influences on foothill yellow-legged frog habitat, connectivity, and juvenile and adult survival (Service 2023, section 7.12, figure 45, p. 117). However, some measures that are taken to improve habitat for cold-water salmonid fishes reduce habitat quality for the foothill yellow-legged frog by decreasing stream temperature and increasing tree canopy cover over streams which negatively influence breeding conditions (such as delaying breeding cues or shortening breeding season) and potentially slow maturation rates for tadpoles. One of the management techniques used to support salmonid recruitment is to release high volumes of cold water from dams in the spring (to trigger spawning runs or to flush smolts out to the ocean) (Kupferberg 1996a, p. 1342; Kiernan et al. 2012, p. 1474). The timing of such flow events can negatively affect foothill yellow-legged frog breeding and recruitment (Kupferberg 1996a, pp. 1336–1337, 1342).

Current and Future Condition Analysis

In our analysis of the current and future condition, we assessed resiliency for each of the four DPSs of the foothill yellow-legged frog by evaluating the health and number of metapopulations for each DPS. A healthy metapopulation is defined in terms of its

abundance, level of reproduction and recruitment, juvenile and adult survival, and connectivity between populations. To assess the current representation for the foothill yellow-legged frog, we considered the current diversity of ecological conditions and the genetic makeup of each DPS as a proxy for the DPS's adaptive capacity. Redundancy for the foothill yellow-legged frog was measured by the quantity and spatial distribution of metapopulations that have been identified as having sufficient resiliency (based on breeding information) across each DPS's range. Generally speaking, the greater the number of healthy metapopulations that are distributed (and connected) across the landscape, the greater the DPS's ability to withstand catastrophic events and, thus, the greater the DPS's overall viability.

Population Structure

Foothill yellow-legged frog distributions and movements across the species' range and within each DPS exhibit the characteristics of metapopulations (Lind 2005, p. 49; Kupferberg et al. 2009b, p. 132). A metapopulation consists of a network of spatially separated population units, or subpopulations, that interact at some level. Subpopulations are subject to periodic extirpation from demographic or environmental stochasticity, but then are naturally repopulated via colonization from nearby subpopulations. Numerous metapopulations may occur within a single stream reach or watershed depending on whether the subpopulations are interacting with each other. Each DPS is made up of numerous metapopulations. In our analysis for determining the range of each DPS, we considered this metapopulation structure when determining whether certain populations or segments interacted with each other and helped define boundaries for the DPSs, especially where some other natural or manmade barrier was not evident.

Current Distribution, Occupancy, Abundance, and Population Trends

The current distribution of the foothill yellow-legged frog generally follows its historical distribution (see the SSA report (Service 2023, pp. 15–19) and December 28,

2021, proposed rule (see 86 FR 73926–73927) for discussion of the historical distribution of the foothill yellow-legged frog) except with range contractions in the southern and, to a lesser extent, northern parts of the species' range. Within areas currently occupied, foothill yellow-legged frog distribution is currently in a declining trend in several parts of the species' range with the species having disappeared from more than half of its historically occupied locations (Lind 2005, pp. 38, 61, table 2.1).

There has not been any rangewide occupancy or population abundance survey effort for the species, and some areas are more heavily surveyed than others. Because of this variation in the available data, we use presence in stream segments as an indicator of occupancy and spatial connectivity of populations. In our review of occupancy, distribution, and abundance, we used information from the California Natural Diversity Database (CNDDB) (CDFW 2020, foothill yellow-legged frog information) and other survey information obtained from Federal and other academic and private resource entities throughout the species' range. The factors we analyzed to determine the condition of a population are (1) spatial and temporal trends in occupancy and reports of population abundance where available, (2) connectivity and isolation among occupied areas, (3) modeled risk of population decline that incorporates demographic and environmental information, and (4) status of threats and their effects (see chapter 8 of the SSA report, Service 2023, pp. 127–172).

Foothill yellow-legged frog occupancy varies widely, with generally greater occupancy in the northern half of the range. Proportions of presumed occupied stream segments were lowest in the South Coast DPS, followed by the South Sierra DPS, Central Coast DPS, and North Feather DPS (see table 10 in the SSA report, Service 2023, p. 130).

Based on current occurrence data (Element Occurrences) for California (CDFW 2020, entire) from the time period between 2000–2020, 70 percent of all known

occurrence locations are presumed to be occupied by the foothill yellow-legged frog in the North Feather DPS (Service 2023, table 10, p. 130). However, looking at a more recent timeframe (2010–2020) the occupancy of foothill yellow-legged frogs in the North Feather DPS’s range has been reduced to 42 percent (Service 2023, table 10, figure 49, pp. 130, 137). In the South Sierra DPS the number of occupied locations is 43 percent, the Central Coast DPS is 42 percent, and the South Coast DPS is 8 percent (Service 2023, table 10, p. 130). Based on patterns of current occupancy by decade of most recent detections (Service 2023, figures 47–53, pp. 133–145), occupied areas are declining in parts of each of the four DPSs. There are large regions in the South Sierra DPS, Central Coast DPS, and South Coast DPS that have not had any reported observations of foothill yellow-legged frogs for two or more decades. Foothill yellow-legged frogs are mostly extirpated in the South Coast DPS and currently occur only in two streams.

Population Viability Analysis

In addition to our assessments of occupancy, abundance, and trends, using occurrence information, we worked with USGS researchers to complete a rangewide population viability analysis (PVA) for the foothill yellow-legged frog (Rose et al. 2020, entire). We used the information from the PVA to inform both the species’ current condition (Service 2023, chapter 8, pp. 127–172) and potential future condition (Service 2023, chapter 9, pp. 173–199). The methods and information used for developing the models used in the PVA are described in section 8.4 of the SSA report (Service 2023, pp. 152–159). The results of the PVA focus on identifying patterns in risk attributed to areas having a greater than or equal to 50 percent decline within and between DPSs (analysis units) and characterize this as the “risk of decline.”

The “risk of decline” results from the PVA reflect many of the geographical patterns that we described above for occupancy data (Service 2023, section 8.2, pp. 128–145). A summary of the PVA results for the current condition of foothill yellow-legged

frog populations within the boundaries of the four DPSs combined with our analysis of occupancy information is discussed below.

The North Feather DPS has a medium-high average relative risk of decline and an intermediate proportion of occupied stream segments (relative to potential stream segments). The southern DPSs (Central Coast, South Coast, and South Sierra DPSs) exhibit the strongest patterns of declining occupancy, with all stream segments within each DPS having either a medium or high relative risk of decline.

Chapter 9 of the SSA report (Service 2023, pp. 173–199) discusses the potential change in magnitude and extent of threats and the species' response to those threats into the future. We have determined that the effects of climate change and its impact on increasing temperatures, changes to precipitation and hydrology, and influence on wildfire and drought, as well as the continued regulated flows from managed streams, will affect its status into the future. The timeframe of our analysis for these threats is approximately 40 years. This period represents our best understanding of the projected future environmental conditions related to threats associated with climate change that would impact the species (increasing temperatures; greater proportion of precipitation falling as rain instead of snow; earlier snowmelt (influencing streamflow); and increased frequency, duration, and severity of extreme events such as droughts, heat waves, wildfires, and floods). The 40-year timeframe was also used in our PVA as part of its analysis on determining risk for the species into the future (Rose et al. 2020, entire). Although we possess climate and habitat change projections that go out beyond 40 years, there is greater uncertainty between these model projections in the latter half of the 21st century and how the effects of the modeled changes will affect the species' response when projected past 40 years. Accordingly, we determined that the foreseeable future extends only 40 years for the purpose of this analysis, and we rely upon projections out to approximately 2060 for predicting changes in the species' conditions. This timeframe

allows us to be more confident in assessing the impact of climate and habitat changes on the species. Therefore, based on the available climate and modeling projections and information we have on the species, we have determined 2060 as the foreseeable future timeframe for the foothill yellow-legged frog.

Our assessment of future condition interprets the effects that the future changes to threats would potentially have on foothill yellow-legged frog resiliency, representation, and redundancy. In order to accomplish our review, three plausible future scenarios were considered and each DPS's future resiliency, redundancy, and representation under each scenario was assessed. As discussed above, we used information from a PVA (Rose et al. 2020, pp. 22–27) to assist us in determining the potential condition of foothill yellow-frog populations into the future. Although there are an infinite number of possible future scenarios, the chosen scenarios (i.e., lower change scenario, mean change scenario, and higher change scenario) reflect a range of reasonable scenarios based on the current understanding of climate change models, threats, and foothill yellow-legged frog ecology. The environmental conditions in each future scenario are plausible in that they are not meant to represent the lowest and highest projections of what is possible. Rather, the lower change and higher change scenarios are at the lower and upper ends of confidence intervals from climate change projections, land cover models, and stream temperature models (Rose et al. 2020, pp. 22–23). Environmental conditions for the three future scenarios are based on published studies that used ensembles of global climate models (Isaak et al. 2017, p. 9188; Swain et al. 2018, p. 427; Sleeter et al. 2019, p. 3336). For the projections of spatially explicit covariates (i.e., land cover and stream temperature), downscaled regional climate model data were used (Isaak et al. 2017, p. 9186; Sleeter et al. 2019, p. 3339). The information from these studies reflects the best scientific and commercial information available for projections of land cover (Sleeter et al. 2019; Sleeter and Kreitler 2020, unpublished data), stream temperature (Isaak et al.

2017), and climate variability (Swain et al. 2018) within the range of the foothill yellow-legged frog.

Descriptions of each scenario and the anticipated effects of each scenario on resiliency, representation, and redundancy for each foothill yellow-legged frog DPS are provided in the SSA report (Service 2023, table 17, sections 9.3–9.5, pp. 177, 180–199) and are summarized below.

Resiliency

Resiliency is the ability of a species (or DPS) to sustain populations through the natural range of favorable and unfavorable conditions. For the foothill yellow-legged frog, we determined that resiliency is a function of metapopulation health and the distribution and connectivity among metapopulations and subpopulations. To determine if foothill yellow-legged frog populations are sufficiently resilient, we first assessed spatial and temporal trends in occupancy and abundance. We then assessed structural and functional connectivity among occupied areas. We also evaluated results from a study that modeled the risk of greater than or equal to 50 percent decline in occupied stream segments using demographic and environmental information. Finally, we related our results to information from scientific literature, reports, and species experts. The table below summarizes the current condition and future conditions of resiliency for each of the four foothill yellow-legged frog DPSs. The current condition column reflects the current resiliency of the DPS. The current resiliency of each of the four DPSs was characterized as having an intact, reduced, substantially reduced, or extensively reduced condition. Under each future scenario, we assessed how the following resiliency measures would change from current condition: (1) occupancy and abundance, (2) connectivity, (3) modeled risk of population decline, and (4) status of threats. Because changes to environmental conditions under the future scenarios were reflected by environmental covariates in the PVA (see Service 2023, section 9.2 (Scenarios) and table

17), we were able to forecast the magnitudes of changes in resiliency by comparing the modeled risk of decline (Rose et al. 2020, entire) under current conditions to modeled risk under the three future scenarios. The lower, mean, and higher change scenario columns represent any changes from each DPS's current resiliency. For this analysis, "functional extirpation" is defined as such extensive reduction in condition that extirpation of the entire unit is likely to eventually occur as remnant populations experience normal environmental and demographic fluctuations. For additional details on current and future conditions of the DPSs, see the SSA report (Service 2023, chapters 8 and 9, pp. 127–199).

Table: Resiliency of the four foothill yellow-legged frog DPSs.

Distinct Population Segment	Current Condition	Lower Change Scenario	Mean Change Scenario	Higher Change Scenario
North Feather DPS	Reduced resiliency	No change.	Markedly reduced from current. <i>Risk of functional extirpation</i>	Greatly reduced from current. <i>Risk of functional extirpation or extirpation</i>
South Sierra DPS	Substantially reduced resiliency	Slightly reduced from current.	Markedly reduced from current. <i>Risk of functional extirpation or extirpation</i>	Greatly reduced from current. <i>Risk of functional extirpation or extirpation</i>
Central Coast DPS	Substantially reduced resiliency	Slightly reduced from current.	Markedly reduced from current. <i>Risk of functional extirpation or extirpation</i>	Greatly reduced from current. <i>Risk of functional extirpation or extirpation</i>

Distinct Population Segment	Current Condition	Lower Change Scenario	Mean Change Scenario	Higher Change Scenario
South Coast DPS	Extensively reduced resiliency	Slightly reduced from current. <i>Risk of extirpation</i>	Markedly reduced from current. <i>Risk of extirpation</i>	Greatly reduced from current. <i>Risk of extirpation</i>

Representation

Representation describes the ability of a species or DPS to adapt to changing environmental conditions. This includes both near-term and long-term changes in its physical (e.g., climate conditions, habitat conditions, habitat structure, etc.) and biological (e.g., pathogens, competitors, predators, etc.) environments. This ability of a species or DPS to adapt to these changes is often referred to as “adaptive capacity.” To assess the current condition of representation for the four DPSs of the foothill yellow-legged frog, we considered the current diversity of ecological conditions and of genetic material throughout the range of each of the DPSs.

There are considerable ranges of ecological conditions under which the four DPSs occur. As discussed in the SSA report (Service 2023, pp. 23, 37–51), there are substantial differences in latitude, elevation, precipitation, average temperature, and vegetative community across the areas occupied by the four DPSs’ ranges. The areas occupied by the four DPSs also differ in terms of species composition and in hydrology (rain-fed versus snow-fed systems). Exemplary of these different ecological conditions, foothill yellow-legged frog tadpoles from snow-fed Sierra Nevada populations (North Feather and South Sierra DPSs) have higher intrinsic growth rates than tadpoles from rain-fed coastal populations (Central Coast and South Coast DPSs), likely due to their constraint

to a shorter rearing season in the Sierra Nevada (Catenazzi and Kupferberg 2017, pp. 1255, 1260–1261).

As described in the SSA report (Service 2023, pp. 20–23), two rangewide assessments of foothill yellow-legged frog genomic datasets revealed that this taxon is extremely differentiated following biogeographical boundaries (McCartney-Melstad et al. 2018, p. 112; Peek 2018, p. 76). The clades that are most genetically divergent (i.e., South Sierra, Central Coast, and South Coast clades), and thus could contribute most to the overall adaptive capacity of this taxon (McCartney-Melstad et al. 2018, p. 120; Peek 2018, p. 77), are also the clades with the lowest levels of population resiliency. The South Sierra and Central Coast clades have substantially reduced resiliency and the South Coast clade has extensively reduced resiliency (Service 2023, pp. 167–170). The reduced resiliency in these clades means that the foothill yellow-legged frog is especially vulnerable to loss of this genetic diversity. The Central Coast and South Coast clades are the most genetically divergent, indicating that a significant amount of the taxon’s overall genetic diversity would be lost if either clade were extirpated. The Central Coast and South Coast clades are also ecologically unique because they have lower annual precipitation and higher mean annual temperatures than elsewhere in the range of the species (PRISM Climate Group 2012, 30-year climate dataset; Service 2023, pp. 47–51) and the region hosts the highest freshwater endemism of anywhere in the species’ California range (Howard et al. 2013, p. 5).

While the foothill yellow-legged frog clearly has a range of genetically divergent populations, it has likely already lost diversity due to large extirpations in the southern DPSs. The loss of diversity for the four DPSs is at further risk amidst trends toward decreasing occupancy and decreasing connectivity (McCartney-Melstad et al. 2018, pp. 120–121; Peek 2018, p. 74).

The trend of decreasing genetic diversity in the foothill yellow-legged frog may be leading to losses in adaptive capacity (i.e., ability to adapt to change). Loss of adaptive capacity lowers a species' viability because the decrease in ability to adapt to change increases extinction risk in the face of future changes. For foothill yellow-legged frog conservation, researchers strongly recommended that each of the major genetic groups be managed as independent recovery units (McCartney-Melstad et al. 2018, p. 122) and that conservation actions should prioritize protecting foothill yellow-legged frogs in the Central Coast, South Coast, and South Sierra clades because they are simultaneously the most distinct, divergent, and at-risk populations (Peek 2018, p. 77).

Redundancy

Redundancy describes the ability of a species to withstand catastrophic events. To assess redundancy for each of the four DPSs, we considered the (1) quantity of occupied stream segments (proxy for subpopulations) (see table 10 of the SSA report (Service 2023, p. 130)), (2) spatial distribution of occupied stream segments (see figure 55 of the SSA report (Service 2023, p. 157)), and (3) population-level factors such as connectivity, relative risk of decline, and level of threats. These factors were assessed in terms of their potential influence on the ability of foothill yellow-legged frog metapopulations to survive and recover after a plausible catastrophic event. For example, isolation of occupied stream segments or lack of functional connectivity in a DPS could prevent recolonization of extirpated areas after a massive die-off or temporary habitat destruction.

The North Feather DPS occupies a relatively small area and several streams or occurrences have been extirpated from past impacts (eastern portion of range, southwestern area near Lake Oroville, and some occurrences in northern Butte County) (CDFW 2020, dataset, entire; Service 2023, figure 49, p. 137). The North Feather DPS also has the highest average relative risk of population decline with only 16 (15 percent) of the 109 analyzed stream segments in the low risk category and 34 stream segments (31

percent) in the high risk category. Overall abundance of foothill yellow-legged frogs for the North Feather DPS is largely unknown, but egg mass densities are very low in the two regulated stream reaches that have long-term monitoring (Rose et al. 2020, pp. 63–64, table 1). For example, sections of the Cresta reach of the North Feather River that historically had relatively high numbers of foothill yellow-legged frog egg masses did not have egg masses or were extremely reduced for several years (2006–2017) (CDFW 2019b, p. 31; Dillingham 2019, p. 7). As a result, redundancy is limited in the North Feather DPS. The North Feather DPS is not only the smallest clade, but its occupied stream segments are not well-distributed over the geographical area (see figure 55 of the SSA report (Service 2023, p. 157)). The extant North Feather populations occupy an area small enough that a large catastrophic event, such as a high-severity wildfire or drought, could result in functional extirpation. Furthermore, the North Feather DPS has reduced resiliency because of poor occupancy and relatively high risk of population decline.

Redundancy is poor in the South Sierra and Central Coast clades. Both the South Sierra and Central Coast clades have substantially reduced resiliency because of poor occupancy, poor connectivity, relatively high risk of decline, and substantial threats. A single catastrophic event would be unlikely to extirpate the entirety of either unit, but the patchy distribution of occurrences (see figure 55 of the SSA report (Service 2023, p. 157)) and limited connectivity would make it extremely unlikely that extirpated areas would be recolonized naturally.

Redundancy within the South Coast clade is nearly zero. Not only is the resiliency in this clade extensively reduced, but there are only two known populations (see section 8.2 of the SSA report (Service 2023, pp. 128–145)) in the South Coast clade. These two populations (comprised of seven stream segments) are also very close in proximity (see figure 55 of the SSA report (Service 2023, p. 157)). These streams are located close to one another, but the foothill yellow-legged frog populations within them appear to have

lost genetic connectivity. Although the stream flows are not regulated by dams, the risk of population decline continues to be medium or high under current conditions due to the combination of threats identified above altering habitat and impacting the DPS.

Furthermore, the close proximity of the stream segments to each other makes the South Coast DPS especially vulnerable to extirpation from a single catastrophic event.

Overall Current and Future Condition

As discussed above, we used the information from the PVA to inform both the current condition (Service 2023, chapter 8, pp. 127–172) and potential future condition (Service 2023, chapter 9, pp. 173–199) of the four DPSs. The PVA assessed how the following measures would change from current condition: (1) occupancy and abundance, (2) connectivity, (3) modeled risk of population decline, and (4) status of threats under each future scenario. Because changes to environmental conditions under the future scenarios were reflected by environmental covariates in the PVA (see Service 2023, section 9.2 (Scenarios), pp. 176–180, and table 17), we were able to forecast the magnitudes of changes in resiliency by comparing the modeled risk of decline (Rose et al. 2020, entire) under current conditions to modeled risk under the three future scenarios. The results of the analysis showed that the average risk of population decline for each of the four DPSs increased under the three future scenarios (Rose et al. 2020, p. 39). Under current conditions and all future scenarios, the average relative risk of decline was highest in the South Sierra and Central Coast units (Service 2023, tables 18 and 19, pp. 184 and 186). Under the lower change scenario, decreases in resiliency, compared to current conditions, were small. However, decreases in resiliency were more dramatic under the mean and higher change scenarios. These declines in resiliency put the four DPSs at risk of extirpation or functional extirpation in the future (i.e., such extensive reduction in condition that extirpation of the entire unit is likely to eventually occur as remnant populations experience normal environmental and demographic fluctuations)

under the mean and higher change scenarios (see table 19 of the SSA report (Service 2023, p. 186)). The South Coast DPS is at risk of extirpation under all three of the future scenarios due to its low population numbers.

Conservation Efforts and Regulatory Mechanisms

Several initiatives and conservation efforts are in place and being implemented for foothill yellow-legged frog conservation, including measures for rearing (headstarting), nonnative species removal, development of reintroduction feasibility studies, and habitat conservation planning for the species (Service 2023, table 9, pp. 122–125). The headstarting (hatching eggs and rearing into releasable frogs) program has just been started on the North Feather River in a portion of the range of the North Feather DPS (GANDA 2018, pp. 1–3, 13, table 2; Dillingham 2019, pp. 7–9; Rose et al. 2020, pp. 63–64, 76, table 1, figure 4). The Forest Service has noted habitat improvements in breeding areas where these in-situ and ex-situ rearing efforts have taken place (Dillingham 2019, pp. 7–9). Also benefitting the species (through regulatory protection) is the State of California’s listing under the CESA for each of the four DPSs in 2020 (Commission 2020, p. 1). Another regulatory benefit that applies to breeding and rearing habitat is the 2009 moratorium on suction-dredge mining in California. However, benefits to the foothill yellow-legged frog from the moratorium have not been studied, and permitting processes are in development so that the moratorium may be lifted (State Water Resources Control Board 2020, entire).

The foothill yellow-legged frog is listed as a sensitive species by the BLM and the Forest Service under their Sensitive Species Programs (BLM 2014a, entire; USFS 2013, entire). These agencies define sensitive or at-risk species as those species that require special management consideration to promote their conservation and reduce the likelihood and need for future listing under the Act. Any actions conducted by these

agencies would take into consideration impacts to sensitive species and, if possible, implement best management practices to limit impacts to the species or its habitat.

As discussed above, FERC issues licenses for the operation of non-Federal hydropower projects. Within the range of the foothill yellow-legged frog, numerous hydropower projects require FERC licensing to operate. Part of the licensing process includes consideration of recommendations for the protection of fish and wildlife. Some FERC license requirements have included measures to help protect and conserve foothill yellow-legged frogs, such as collection of data, implementation of modified flow regimes to mimic more natural conditions, and other standard best management practices.

Two joint Federal and State habitat conservation plans (HCPs) and California State natural community conservation plans (NCCPs) (Santa Clara Valley HCP/NCCP and East Contra Costa HCP/NCCP) have been approved and implemented for the foothill yellow-legged frog as a covered species and assist in local population and habitat conservation and restoration (Jones & Stokes 2006, entire; ICF International 2012, entire). Both HCP/NCCPs are in the northern portion of the Central Coast DPS's range.

Due to the limited nature of existing conservation efforts and no rangewide planning or coordination, the current conservation efforts are localized. In addition, several ongoing efforts are preliminary steps to on-the-ground conservation (e.g., feasibility research) and other efforts have not had enough time to verify long-term success (e.g., population headstarting) or determine if and how the condition of a foothill yellow-legged frog population may have improved (e.g., bullfrog removal) (Service 2023, section 7.15, pp. 121–126). Therefore, large-scale conservation efforts currently being implemented are not known to be ameliorating any of the threats described above for the four DPSs but may reduce some effects at the individual or smaller localized population levels.

Determination of Status for the Foothill Yellow-Legged Frog

Section 4 of the Act (16 U.S.C. 1533) and its implementing regulations (50 CFR part 424) set forth the procedures for determining whether a species meets the definition of an endangered species or a threatened species. The Act defines an “endangered species” as a species in danger of extinction throughout all or a significant portion of its range, and a “threatened species” as a species likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The Act requires that we determine whether a species meets the definition of an endangered species or a threatened species because of any of the following factors: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence.

In determining potential future threats facing the North Feather, South Sierra, Central Coast, and South Coast DPSs, we evaluated various future conditions based on projections of changes in threats. Our timeframe for review looked out approximately 40 years based on the effects of climate change and information developed for the PVA. This was our timeframe for our threats analysis of future conditions for the four DPSs to determine if they were likely to become endangered within the foreseeable future (i.e., if they meet the Act’s definition of “threatened species”) throughout their ranges.

Status of the South Sierra DPS and the South Coast DPS of the Foothill Yellow-Legged Frog Throughout All of Their Ranges

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats to the South Sierra and South Coast DPSs of the foothill yellow-legged frog and their habitats. Below, we summarize our assessment of status of the South Sierra DPS and South Coast DPS under the Act.

South Sierra DPS

Threats are numerous and severe for the South Sierra DPS and include altered hydrology (Factor A), agriculture (including airborne pesticide drift) (Factor A), illegal cannabis cultivation (Factor A), predation by nonnative species (Factor C), disease and parasites (Factor C), mining (Factor A), urbanization (including development and roads) (Factor A), recreation (Factor E), severe wildfire (Factor A), drought (Factor E), extreme flooding (Factor E), and the effects of climate change (e.g., increased temperatures, variability in precipitation events, increased drought frequency) (Factor E). Existing regulatory mechanisms are not sufficient to ameliorate the identified threats (Factor D). After evaluating threats to the DPS and assessing the cumulative effect of the threats under the Act's section 4(a)(1) factors, we conclude that under current conditions, resiliency, redundancy, and representation are substantially reduced due to existing range contractions and the DPS's extensive extirpations and patchy distribution within and between stream segments. Both structural and functional connectivity are also poor in the South Sierra DPS. Populations within the DPS are relatively small and isolated, and are impacted by numerous threats that are of such great extent and magnitude that they are making the South Sierra DPS more susceptible to loss from stochastic or catastrophic events. The South Sierra DPS also has a high average risk of decline with no stream segments in lower risk categories under current conditions. As a result, we find that the magnitude and imminence of threats facing the South Sierra DPS of the foothill yellow-legged frog place the DPS in danger of extinction now, and therefore a threatened status is not appropriate. Thus, after assessing the best scientific and commercial information available, we determine that the South Sierra DPS of the foothill yellow-legged frog is in danger of extinction throughout all of its range.

South Coast DPS

There are numerous, severe threats to the South Coast DPS of the foothill yellow-legged frog, including altered hydrology (Factor A), drought (Factor E), nonnative

species (Factor C), disease and parasites (Factor C), urbanization (including development and roads (Factor A) and recreation (Factor E)), illegal cannabis cultivation (Factor A), extreme floods (Factor E), severe wildfire (Factor A), the effects of climate change (e.g., increased temperatures, precipitation variability, and increased drought frequency and duration) (Factor E). Existing regulatory mechanisms are not sufficient to ameliorate the identified threats (Factor D). After evaluating threats to the DPS and assessing the cumulative effect of the threats under the Act's section 4(a)(1) factors, we conclude that under current conditions, resiliency, redundancy, and representation are poor for the South Coast DPS. Foothill yellow-legged frogs are mostly extirpated in this DPS and currently occur only in two streams. These streams are located close to one another, but the foothill yellow-legged frog populations within them appear to have lost genetic connectivity. Although the stream flows are not regulated by dams, the risk of population decline continues to be medium or high under current conditions due to the combination of threats identified above altering habitat and impacting the DPS. Furthermore, the close proximity of the stream segments to each other makes the South Coast DPS especially vulnerable to extirpation from a single catastrophic event. The area associated with the South Coast DPS is subject to reduced precipitation and drying, which (1) shortens the hydroperiod and negatively affects habitat elements that are hydrology-dependent; (2) limits recruitment, survival, and connectivity; and (3) exacerbates the effects of other threats, such as predation and wildfire. In addition, the current occupancy within the DPS is extremely low and the threats acting on the DPS are of such extent and magnitude to result in significant declines. As a result, we find that the magnitude and imminence of threats facing the South Coast DPS of the foothill yellow-legged frog place the DPS in danger of extinction now, and therefore a threatened status is not appropriate. Thus, after assessing the best scientific and commercial information available, we determine that currently the South Coast DPS of the foothill yellow-legged frog is in danger of

extinction throughout all of its range.

Status of the South Sierra DPS and South Coast DPS Throughout a Significant Portion of Their Ranges

Under the Act and our implementing regulations, a species or DPS may warrant listing if it is in danger of extinction or likely to become so in the foreseeable future throughout all or a significant portion of its range. We have determined that the South Sierra DPS and the South Coast DPS of the foothill yellow-legged frog are in danger of extinction throughout all of their ranges, and accordingly we did not undertake an analysis of any significant portion of the range for these two DPSs. Because both DPSs warrant listing as endangered throughout all of their ranges, our determination does not conflict with the decision in *Center for Biological Diversity v. Everson*, 435 F. Supp. 3d 69 (D.D.C. 2020) (*Everson*), which vacated the provision of the Final Policy on Interpretation of the Phrase “Significant Portion of Its Range” in the Endangered Species Act’s Definitions of “Endangered Species” and “Threatened Species” (Final Policy) (79 FR 37578, July 1, 2014) providing that if the Services determine that a species is threatened throughout all of its range, the Services will not analyze whether the species is endangered in a significant portion of its range.

Determination of Status for the South Sierra DPS and South Coast DPS

Our review of the best available scientific and commercial information indicates that the South Sierra DPS and the South Coast DPS meet the Act’s definition of endangered species. Therefore, we are listing the South Sierra DPS and the South Coast DPS of the foothill yellow-legged frog as endangered species in accordance with sections 3(6) and 4(a)(1) of the Act.

Status of the North Feather DPS and Central Coast DPS of the Foothill Yellow-Legged

Frog Throughout All of Their Ranges

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats to the North Feather and Central Coast DPSs of the foothill yellow-legged frog and their habitats. Below, we summarize our assessment of status of the North Feather DPS and Central Coast DPS under the Act.

North Feather DPS

Numerous threats are currently acting on the North Feather DPS. The North Feather DPS is within the most hydrologically altered part of the foothill yellow-legged frog's range (Factor A) and potentially is among the most impacted by the latent effects from historical mining (Hayes et al. 2016, pp. 53–54) (Factor A). Other threats to the DPS include nonnative species (bullfrogs and crayfish) (Factor C), impacts to habitat (agriculture, urbanization, severe wildfire) (Factor A), recreation (Factor E), the effects of climate change (Factor E). Existing regulatory mechanisms are not sufficient to ameliorate the identified threats (Factor D). After evaluating threats to the DPS and assessing the cumulative effect of the threats under the Act's section 4(a)(1) factors, we conclude that under current conditions, resiliency, redundancy, and representation for the North Feather DPS are reduced.

The North Feather DPS occupies a relatively small area and several streams or occurrences have been extirpated from past impacts (eastern portion of range, southwestern area near Lake Oroville, and some occurrences in northern Butte County) (CDFW 2020, dataset, entire; Service 2023, figure 49, p. 137). The North Feather DPS also has the highest average relative risk of population decline with only 16 (15 percent) of the 109 analyzed stream segments in the low risk category and 34 stream segments (31 percent) in the high risk category. Overall abundance of foothill yellow-legged frogs for the North Feather DPS is largely unknown, but egg mass densities are very low in the two regulated stream reaches that have long-term monitoring (Rose et al. 2020, pp. 63–

64, table 1). For example, sections of the Cresta reach of the North Feather River that historically had relatively high numbers of foothill yellow-legged frog egg masses did not have egg masses or were extremely reduced for several years (2006–2017) (CDFW 2019b, p. 31; Dillingham 2019, p. 7).

Under current conditions, resiliency in the North Feather DPS has been reduced based on recent occupancy information, largely because of the DPS's occupation of a small geographic area, range contraction, the relatively high risk of the DPS's decline, and the area's high degree of hydrological alteration. However, the North Feather DPS still currently contains a relatively high proportion of occurrence records with 42 percent of all known occurrences being from the 2010–2020 timeframe (Service 2023, table 10, figure 49, pp. 130, 137). In addition, conservation measures to improve flow regimes to more natural conditions and rearing efforts to augment foothill yellow-legged frog populations have reduced some current impacts and improved occupancy in some areas and as a result have assisted in improving the DPS's current condition in these areas. As a result, we consider the current occupancy for the North Feather DPS to be stable, based on a majority of records being within the 2000–2020 timeframe, but recognize population monitoring indicates that the DPS has low abundance and limited distribution. Current redundancy is limited in the North Feather DPS. The North Feather DPS not only occupies the smallest area, but its occupied stream segments are not well-distributed over the geographical area it occupies. Current representation of the DPS is most likely reduced due to past loss of populations.

After evaluating threats to the species and assessing the cumulative effect of the threats under the section 4(a)(1) factors, we have determined that, even with the current condition of the DPS being reduced, the population and habitat factors used to determine the resiliency, representation, and redundancy for the DPS have not been reduced to such

a degree to consider the North Feather DPS currently in danger of extinction throughout its range.

However, threat conditions in the future are likely to substantially impact populations of the North Feather DPS. Because of the current cold stream temperatures, future climatic conditions that may increase stream temperatures may potentially benefit many of the North Feather DPS populations; however, the negative effects of increases in streamflow variability due to climate change (i.e., drought/flood events, snow/rain events) and residual environmental stochasticity likely outweigh the benefit of any warmer stream temperatures. Increased water demand and anticipated additional regulation to an already highly regulated hydrologic condition of the DPS's habitat will further limit the DPS's capability to maintain adequate population sizes to support the DPS's metapopulation structure. Nonnative species (bullfrogs and crayfish) will continue to impact the DPS, and their impacts may increase as temperatures warm, allowing for spread of warm water species such as bullfrogs and smallmouth bass. Trends indicate that the amount of area severely burned annually by wildfires has been growing sharply in the range of the North Feather DPS (Service 2023, figures 38 and 39, pp. 109–110), and negative consequences from wildfire-related sedimentation to foothill yellow-legged frog reproduction have been documented in this DPS (Service 2023, pp. 103–113). The populations of the North Feather DPS occupy an area small enough that a large catastrophic event, such as a severe wildfire or prolonged drought, could result in a severe reduction in population size and extent for the DPS. In the SSA report we identified three future scenarios to assist in evaluating the future resiliency of the DPSs. These included a lower change scenario, a higher change scenario, and a mean change scenario. All three of these scenarios took into account each DPSs current resiliency and provided information on any changes from the DPSs current resiliency. For the North Feather DPS, the DPS's current resiliency is considered reduced. Under the lower change

scenario the DPS is continued to have reduced resiliency, under the mean change scenario the DPS is expected to have a markedly reduced resiliency and be at risk of functional extirpation, and under the higher change scenario the DPS is expected to have a greatly reduced resiliency and be at risk of functional extirpation or be extirpated. Based on this information, we have determined that the future resiliency for the North Feather DPS will be markedly reduced as a result of the increases in threats and increases in the synergistic effects of threat interactions on the DPS, as well as the DPS's response to the threats as identified above. Thus, the projected increases in average relative risk of decline under future conditions under the mean change scenario are likely to decrease occupancy, abundance, and connectivity, with resiliency being markedly reduced from the DPS's current condition within 40 years.

As a result of the DPS having a large percentage (70 percent) of stream segments occupied (since 2000) with a large proportion of those segments (42 percent) being occupied since 2010, and implementation of conservation measures to reduce the effects of altered stream hydrology and provide for an increase in populations, we have determined that the current condition of the DPS, although reduced, still exhibits sufficient resiliency, redundancy, and representation and provide for, at a minimum, areas of favorable conditions that allow the North Feather DPS to currently sustain its existing populations. However, future impacts from the threats facing the DPS are likely to cause declines in the DPS's population size and distribution. Thus, after assessing the best available information, we conclude that the North Feather DPS of the foothill yellow-legged frog is not currently in danger of extinction but is likely to become in danger of extinction within the foreseeable future throughout all of its range.

Central Coast DPS

Numerous threats are currently acting on the Central Coast DPS, including altered hydrology (Factor A), disease (Factor C), drought (Factor A), nonnative bullfrogs (Factor

C), impacts to habitat (urbanization (including development and roads), agriculture, trespass cannabis cultivation, extreme floods, and wildfire) (Factor A), recreation (Factor E), the effects of climate change (Factor E). Existing regulatory mechanisms are not sufficient to ameliorate the identified threats (Factor D). Human land use and population (urban development) in the northern portions of the DPS's range are high, and the proportion of forest and shrub cover across the DPS's range is low, with large areas being made up of lower elevation open oak woodlands or foothill grassland habitats. Seasonal precipitation within the range of the Central Coast DPS is extremely variable year-to-year, making stream habitat for the Central Coast DPS subject to drying. This, in turn, shortens the breeding season; negatively affects habitat elements that are hydrology-dependent; limits recruitment, survival, and connectivity; and exacerbates the effects of other threats (e.g., wildfire, drought, nonnative predators, disease, and the effects of climate change). However, this variability has also resulted in the Central Coast area of California (including the area occupied by the Central Coast DPS) containing a high number of freshwater species that have evolved adaptations to their environment (Howard et al. 2013, p. 5). Below, we summarize the resiliency, redundancy, and representation of the Central Coast DPS.

The Central Coast DPS has undergone historical range contraction in portions of its northern (Contra Costa, Alameda, San Mateo, and northern Santa Cruz Counties) and central (southern Santa Clara and northern San Benito Counties) regions. Currently, two clusters of stream segments have had recent (2000–2020) detections of the species, one cluster in the southern part and one cluster in the northern part of the DPS's range (Service 2023, figure 52, p. 143). Population size and abundance for the Central Coast DPS have been historically and continue to be small, with those populations in unregulated streams being larger and more productive (Service 2023, pp. 142–143). The southern cluster appears to have functional connectivity and therefore have the ability to

share genetic material between populations (McCartney-Melstad et al. 2018, p. 117, figure 3 (2C)), which assists in maintaining the cluster's metapopulation integrity. The southern cluster also has fewer human-caused threats (e.g., urbanization, recreation) due to its distance away from highly human-populated areas and its location on public lands (BLM's Clear Creek Management Area (CCMA)). Populations within the CCMA in San Benito and Fresno Counties are being monitored and managed by BLM, and currently appear to be self-sustaining (BLM 2014b, pp. 4-77, 99-100). The northern cluster is proximate to highly urbanized areas of the south San Francisco Bay area and San Jose, California. The northern cluster exhibits some genetic differentiation among subpopulations, indicating that the DPS has a lack of functional connectivity (McCartney-Melstad et al. 2018, p. 117, figure 3 (4B)). However, two HCP/NCCPs (East Contra Costa and Santa Clara Valley) (Jones & Stokes 2006, entire; ICF International 2012, entire) that identify the foothill yellow-legged frog as a covered species have been approved and implemented. These plans assist in ameliorating the current threats acting on the northern populations of the Central Coast DPS and help conserve the DPS and its habitat within their jurisdictional boundaries.

Current resiliency of the Central Coast DPS is substantially reduced due to past impacts limiting connectivity between populations and existing populations having smaller population abundance and breeding (Rose et al. 2020, p. 63, table 1). The average risk of population decline for the Central Coast DPS is considered high and numerous threats (altered hydrology, drought, nonnative species, disease, and urbanization) are currently acting on the DPS. The current overall redundancy for the Central Coast DPS is considered adequate to guard against catastrophic events. This is because the Central Coast DPS has numerous occupied stream segments that are spatially distributed across the DPS's range, and those stream segments exhibit variable environmental conditions providing for, at a minimum, refugia for the population. As a result of this distribution,

the likelihood that a single catastrophic event would impact a significant proportion of the Central Coast DPS's populations to the point of extirpation or functional extirpation is extremely small. Current representation for the Central Coast DPS is considered sufficient to maintain its adaptive capacity. The Central Coast DPS has evolved in an area with high climatic variability and is most likely adapted to environmental changes. The Central Coast DPS is also one of the most genetically divergent for the foothill yellow-legged frog, indicating that the DPS still contains a significant amount of the taxon's overall genetic diversity.

In the future, the average risk of decline for the existing populations is expected to increase by 14 percent and the number of populations at high risk of decline are expected to increase by 69 percent, under the mean change scenario. The lower change scenario identified resiliency as slightly reduced from the DPSs current reduced resiliency and the high change scenario identified the resiliency for the DPS to be greatly reduced with a risk of functional extirpation or extirpation due to its reduced ability to withstand stochastic events. These changes are a result of increases in threats such as climate-induced demand for surface waters that is projected to increase by 5 to 20 percent (from 1900–1970 levels) by mid-century (2050) (Averyt et al. 2013, p. 7, figure 7). Future increases in severe wildfires are expected. Despite wildfire trends in the Central Coast DPS being stable between 1950 and 2018 (Service 2023, figure 38, p. 109), recent events such as the fires in 2020 in the San Mateo–Santa Cruz Unit (CZU) (35,009 hectares (ha) (86,509 acres (ac)) (Santa Cruz and San Mateo Counties) and Santa Clara Unit (SCU) (160,508 ha (396,624 ac)) (Santa Clara, Alameda, and Stanislaus Counties) Lightning Complex are examples of expected increasing trends in wildfire activity in the future (CALFIRE 2021, entire). Under the lower change scenario, the Central Coast DPS's resiliency would be slightly reduced. Under the mean change scenario, resiliency would be markedly reduced from current condition due to reductions in population numbers and

distribution (reduction in redundancy). This reduction in resiliency under the mean change scenario would put the Central Coast DPS at risk of functional extirpation or extirpation within 40 years.

After evaluating threats to the Central Coast DPS and assessing the cumulative effect of the threats under the Act's section 4(a)(1) factors, we find that the Central Coast DPS of the foothill yellow-legged frog currently sustains numerous populations and contains habitat distributed throughout the DPS's range (redundancy). These widely distributed populations provide for the genetic and ecological representation for the DPS across its range. Therefore, the current resiliency, redundancy, and representation are sufficient to prevent the current threats acting on the Central Coast DPS from causing it to be in danger of extinction currently. Thus, the Central Coast DPS of the foothill yellow-legged frog is not currently in danger of extinction throughout its range, and, therefore, the Central Coast DPS does not meet the Act's definition of an endangered species. However, based on our projections of future occupancy, modeled risk of decline assessments from the PVA, and the existing and increased threats in the future on the DPS from increasing water demand, increases in wildfire frequency and intensity due to climate change conditions will further impact abundance and connectivity of populations and cause the DPS's habitat to become increasingly less able to support foothill yellow-legged frog populations into the future. Thus, after assessing the best information available, we conclude that the Central Coast DPS of the foothill yellow-legged frog is likely to become in danger of extinction within the foreseeable future throughout all of its range.

Status of the North Feather DPS and Central Coast DPS of the Foothill Yellow-Legged Frog Throughout a Significant Portion of Their Ranges

Under the Act and our implementing regulations, a species or DPS may warrant listing if it is in danger of extinction or likely to become so in the foreseeable future

throughout all or a significant portion of its range. The court in *Center for Biological Diversity v. Everson*, 435 F. Supp. 3d 69 (D.D.C. 2020) (*Everson*), vacated the provision of the Final Policy on Interpretation of the Phrase “Significant Portion of Its Range” in the Endangered Species Act’s Definitions of “Endangered Species” and “Threatened Species” (herein after “Final Policy”; 79 FR 37578, July 1, 2014) that provided if the Services determine that a species or DPS is threatened throughout all of its range, the Services will not analyze whether the species or DPS is endangered in a significant portion of its range.

Therefore, we proceed to evaluating whether the North Feather DPS or Central Coast DPS is endangered in a significant portion of its range—that is, whether there is any portion of either DPS’s range for which both (1) the portion is significant; and (2) the species is in danger of extinction in that portion. Depending on the case, it might be more efficient for us to address the “significance” question or the “status” question first. We can choose to address either question first. Regardless of which question we address first, if we reach a negative answer with respect to the first question that we address, we do not need to evaluate the other question for that portion of either DPS’s range.

Following the court’s holding in *Everson*, we now consider whether there are any significant portions of either of the two DPSs’ ranges where either DPS is in danger of extinction now (i.e., endangered). In undertaking this analysis for the North Feather DPS and Central Coast DPS, we choose to address the status question first—we consider information pertaining to the geographic distribution of both the species and the threats that the two DPSs face to identify any portions of either DPS’s range where either is endangered. Below we provide our significant portion of the range analysis for the North Feather DPS and Central Coast DPS.

North Feather DPS

We evaluated the range of the North Feather DPS to determine if the DPS is in danger of extinction now in any portion of its range. The range of a species can theoretically be divided into portions in an infinite number of ways. We focused our analysis on portions of the species' range that may meet the definition of an endangered species. For the North Feather DPS, due to its relatively small distribution, we considered whether the threats or their effects on the species are greater in any biologically meaningful portion of the species' range than in other portions such that the species is in danger of extinction now in that portion.

For the North Feather DPS, we examined the following major threats: altered stream hydrology or other habitat impacts, nonnative species, severe wildfire, recreation, and the effects of climate change, including cumulative effects.

The current resiliency of the North Feather DPS is considered reduced when compared to conditions prior to the year 2000, with approximately 70 percent of locations being occupied over the 2000–2020 timeframe. However, the DPS still has a relatively high proportion of presumed occupied and well distributed stream segments relative to the number of potential stream segments. Most of the recent records of the DPS are distributed within two major stream segments and their tributaries within the DPS's range. The major driving threats identified above are currently acting uniformly within these stream segments and tributaries. The implementation of conservation efforts such as reintroductions and stream flow management on regulated streams have assisted in maintaining and reducing the current threats for the DPS. The major driving threats associated with severe wildfire, altered hydrology, and the effects of climate change are all expected to increase in the future but we expect the DPS to have sufficient resiliency, redundancy, and representation to maintain populations in the wild as based on occupancy over the last 20 years. The current threat conditions and impacts from those threats on the North Feather DPS across its range are relatively uniform as based on the

modeling efforts used to determine the species current conditions (Service 2023, table 19, p. 186). This information regarding the DPS's current condition, risk of decline, and uniformity and timing of threats all confirm our determination that the DPS currently meets the definition of threatened and that there are no portions of its range where the DPS is currently endangered.

We found no biologically meaningful portion of the North Feather DPS's range where threats are impacting individuals differently from how they are affecting the DPS elsewhere in its range, or where the biological condition of the DPS differs from its condition elsewhere in its range such that the status of the DPS in that portion differs from any other portion of the DPS's range.

Therefore, no portion of the North Feather DPS's range provides a basis for determining that the DPS is in danger of extinction in a significant portion of its range, and we determine that the DPS is likely to become in danger of extinction within the foreseeable future throughout all of its range.

Central Coast DPS

We evaluated the range of the Central Coast DPS to determine if the DPS is in danger of extinction now in any portion of its range. The range of a species or DPS can theoretically be divided into portions in an infinite number of ways. We focused our analysis on portions of the DPS's range that may meet the definition of an endangered species. For the Central Coast DPS, we considered whether the threats or their effects on the species are greater in any biologically meaningful portion of the species' range than in other portions such that the species is in danger of extinction now in that portion.

The statutory difference between an endangered species and a threatened species is the timeframe in which the species or DPS becomes in danger of extinction; an endangered species is in danger of extinction now while a threatened species is not in danger of extinction now but is likely to become so in the foreseeable future. Thus, we

reviewed the best scientific and commercial data available regarding the time horizon for the threats that are driving the Central Coast DPS to warrant listing as a threatened species throughout all of its range. We then considered whether these threats or their effects are occurring (or may imminently occur) in any portion of the species' range with sufficient magnitude such that the DPS is in danger of extinction now in that portion of its range. We examined the following threats: altered hydrology, drought, nonnative bullfrogs, Bd (disease), agriculture (especially illegal cannabis cultivation), mining, urbanization (including roads and recreation), extreme flood events, and the effects of climate change, including cumulative effects. For the Central Coast DPS, we have determined that urbanization and associated human impacts (roads and recreation) most likely have disproportional impacts in certain areas in the northern portion of the DPS's range.

In the northern portion of the Central Coast DPS's range at lower elevation in highly urbanized areas (such as San Francisco and East Bay), impacts from threats associated with development and human land use are particularly high (Service 2023, figure 55, p. 157). This corresponds to an observed pattern of historical decline of the Central Coast DPS's occupancy in this northern portion of its range where few recent (i.e., 2000–2020) records exist directly south or directly east of the San Francisco Bay (Service 2023, figure 52, p. 143). According to the PVA, the stream segments in this northern portion were also identified as having the highest risks of decline when compared to stream segments in other parts of the Central Coast DPS's range (Service 2023, figure 55, p. 157). This pattern of elevated risk suggests that extirpations of the foothill yellow-legged frog in the northern portion of the Central Coast DPS's range are more likely to occur. However, within this northern portion currently the Central Coast DPS is still well distributed with approximately 50 percent of records since between 2000 and 2020 being confirmed over the 2010–2020 timeframe. In addition, foothill yellow-legged frog populations within this northern portion are located in streams and watersheds outside the lower elevation areas and are not currently subject to widespread or significant threats from urban development. In addition, current conservation

efforts in the northern portion associated with the East Contra Costa HCP and the Santa Clara Valley HCP are currently being implemented to protect and conserve foothill yellow-legged frogs and their habitat and we expect that these efforts will reduce the level of threats and provide benefits to the DPS's habitat in this northern portion.

Although within the northern portion of the Central Coast DPS's range, some threats to the DPS are impacting individuals differently from how they are affecting the species elsewhere in its range, the best scientific and commercial data available do not indicate that the threats, or the DPS's responses to the threats, are such that the Central Coast DPS is in danger of extinction now in the northern portion of its range. Therefore, we determine, that the species is likely to become in danger of extinction within the foreseeable future throughout all of its range.

Therefore, no portions of the North Feather DPS or Central Coast DPS ranges provides a basis for determining that either DPS is in danger of extinction in a significant portion of its respective range, and we determine that the DPSs are likely to become in danger of extinction within the foreseeable future throughout all of their ranges. This does not conflict with the courts' holdings in *Desert Survivors v. U.S. Department of the Interior*, 321 F. Supp. 3d 1011, 1070-74 (N.D. Cal. 2018) and *Center for Biological Diversity v. Jewell*, 248 F. Supp. 3d 946, 959 (D. Ariz. 2017) because, in reaching this conclusion, we did not apply the aspects of the Final Policy, including the definition of "significant" that those court decisions held to be invalid.

Determination of Status for the North Feather DPS and Central Coast DPS of the Foothill Yellow-Legged Frog

Our review of the best scientific and commercial information available indicates that the North Feather DPS and Central Coast DPS of the foothill yellow-legged frog are likely to become endangered species within the foreseeable future throughout their ranges and thus meet the Act's definition of threatened species. Therefore, we are listing the

North Feather DPS and Central Coast DPS of the foothill yellow-legged frog as threatened species in accordance with sections 3(20) and 4(a)(1) of the Act.

Available Conservation Measures

Conservation measures provided to species or DPSs listed as endangered or threatened species under the Act include recognition as a listed species, planning and implementation of recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing results in public awareness, and conservation by Federal, State, Tribal, and local agencies, private organizations, and individuals. The Act encourages cooperation with the States and other countries and calls for recovery actions to be carried out for listed species. The protection required by Federal agencies, including the Service, and the prohibitions against certain activities are discussed, in part, below.

The primary purpose of the Act is the conservation of endangered and threatened species and the ecosystems upon which they depend. The ultimate goal of such conservation efforts is the recovery of these listed species, so that they no longer need the protective measures of the Act. Section 4(f) of the Act calls for the Service to develop and implement recovery plans for the conservation of endangered and threatened species. The goal of this process is to restore listed species to a point where they are secure, self-sustaining, and functioning components of their ecosystems.

Recovery planning consists of preparing draft and final recovery plans, beginning with the development of a recovery outline and making it available to the public within 30 days of a final listing determination. The recovery outline guides the immediate implementation of urgent recovery actions and describes the process to be used to develop a recovery plan. Revisions of the plan may be done to address continuing or new threats to the species, as new substantive information becomes available. The recovery plan also identifies recovery criteria for review of when a species may be ready for

reclassification from endangered to threatened (“downlisting”) or removal from protected status (“delisting”), and methods for monitoring recovery progress. Recovery plans also establish a framework for agencies to coordinate their recovery efforts and provide estimates of the cost of implementing recovery tasks. Recovery teams (composed of species experts, Federal and State agencies, nongovernmental organizations, and stakeholders) are often established to develop recovery plans. When completed, the recovery outline, draft recovery plan, and the final recovery plan will be available on our website (<https://www.fws.gov/program/endangered-species>), or from our Sacramento Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**).

Implementation of recovery actions generally requires the participation of a broad range of partners, including other Federal agencies, States, Tribes, nongovernmental organizations, businesses, and private landowners. Examples of recovery actions include habitat restoration (e.g., restoration of native vegetation), research, captive propagation and reintroduction, and outreach and education. The recovery of many listed species cannot be accomplished solely on Federal lands because their range may occur primarily or solely on non-Federal lands. To achieve recovery of these species requires cooperative conservation efforts on private, State, and Tribal lands.

Once this species is listed, funding for recovery actions will be available from a variety of sources, including Federal budgets, State programs, and cost-share grants for non-Federal landowners, the academic community, and nongovernmental organizations. In addition, pursuant to section 6 of the Act, the State of California will be eligible for Federal funds to implement management actions that promote the protection or recovery of the DPSs. Information on our grant programs that are available to aid species recovery can be found at: <https://www.fws.gov/service/financial-assistance>.

Please let us know if you are interested in participating in recovery efforts for the foothill yellow-legged frog. Additionally, we invite you to submit any new information

on this species whenever it becomes available and any information you may have for recovery planning purposes (see **FOR FURTHER INFORMATION CONTACT**).

Section 7(a) of the Act requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as an endangered or threatened species and with respect to its critical habitat, if any is designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(2) of the Act requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of any endangered or threatened species or destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency (action agency) must enter into consultation with the Service.

Examples of Federal agency actions within the species' habitat within the DPSs that may require conference or consultation or both, as described in the preceding paragraph, include, but are not limited to, management and any other landscape-altering activities on Federal lands administered by the U.S. Fish and Wildlife Service, Forest Service, BLM, and National Park Service; issuance of section 404 Clean Water Act (33 U.S.C. 1251 et seq.) permits by the U.S. Army Corps of Engineers; construction and maintenance of roads, bridges, or highways by the Federal Highway Administration; water management and conveyance activities by the Bureau of Reclamation; and licensing for hydropower and safety of dams by the FERC.

South Sierra DPS and South Coast DPS – Endangered Status

The Act and its implementing regulations set forth a series of general prohibitions and exceptions that apply to endangered wildlife. The prohibitions of section 9(a)(1) of the Act, codified at 50 CFR 17.21, make it illegal for any person subject to the jurisdiction of the United States to take (which includes harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect; or to attempt any of these) endangered wildlife

within the United States or on the high seas. In addition, it is unlawful to import; export; deliver, receive, carry, transport, or ship in interstate or foreign commerce in the course of commercial activity; or sell or offer for sale in interstate or foreign commerce any species listed as an endangered species. It is also illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken illegally. Certain exceptions apply to employees of the Service, the National Marine Fisheries Service, other Federal land management agencies, and State conservation agencies.

We may issue permits to carry out otherwise prohibited activities involving endangered wildlife under certain circumstances. Regulations governing permits are codified at 50 CFR 17.22. With regard to endangered wildlife, a permit may be issued for the following purposes: For scientific purposes, to enhance the propagation or survival of the species, and for incidental take in connection with otherwise lawful activities. The statute also contains certain exemptions from the prohibitions, which are found in sections 9 and 10 of the Act.

It is our policy, as published in the *Federal Register* on July 1, 1994 (59 FR 34272), to identify to the maximum extent practicable at the time a species is listed, those activities that would or would not constitute a violation of section 9 of the Act. The intent of this policy is to increase public awareness of the effect of a final listing on proposed and ongoing activities within the range of the listed species.

Because activities being implemented in the range of the species are variable and have variable impacts depending on the nature of the project, we are unable at this time to identify any specific activities within the range of the species that would not constitute a violation of section 9, as effects of any actions on the species are fact-pattern specific. However, actions whose effects do not extend into foothill yellow-legged frog habitat are unlikely to result in section 9 violations.

Based on the best available information, the following activities that the Service believes could potentially harm the foothill yellow-legged frog and result in “take” and, therefore, may result in a violation of section 9 of the Act if they are not authorized in accordance with applicable law include, but are not limited to:

- (1) Unauthorized handling or collecting of the species;
- (2) Destruction/alteration of the species’ habitat by discharge of fill material, draining, ditching, tiling, pond construction, stream channelization or diversion, or diversion or alteration of surface or ground water flow;
- (3) Inappropriate livestock grazing that results in direct or indirect destruction of riparian habitat;
- (4) Pesticide applications in violation of label restrictions;
- (5) Introduction of nonnative species that compete with or prey upon foothill yellow-legged frogs, such as the introduction of nonnative bullfrogs or nonnative fish; and
- (6) Modification of the channel or water flow of any stream or removal or destruction of vegetation or stream substrate in any body of water in which the foothill yellow-legged frog is known to occur.

Questions regarding whether specific activities would constitute a violation of section 9 of the Act should be directed to the Sacramento Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**).

North Feather DPS and Central Coast DPS – Threatened Status

It is our policy, as published in the *Federal Register* on July 1, 1994 (59 FR 34272), to identify to the maximum extent practicable at the time a species is listed, those activities that would or would not constitute a violation of section 9 of the Act. The intent of this policy is to increase public awareness of the effect of a final listing on proposed and ongoing activities within the range of the listed species. The discussion below

regarding protective regulations under section 4(d) of the Act for the North Feather DPS and Central Coast DPS, which we are listing as threatened in this rule, complies with our policy.

II. Final Rules Issued Under Section 4(d) of the Act for the North Feather DPS and the Central Coast DPS of the Foothill Yellow-Legged Frog

Background

Section 4(d) of the Act contains two sentences. The first sentence states that the Secretary shall issue such regulations as she deems necessary and advisable to provide for the conservation of species listed as threatened. The U.S. Supreme Court has noted that statutory language like “necessary and advisable” demonstrates a large degree of deference to the agency (see *Webster v. Doe*, 486 U.S. 592 (1988)). Conservation is defined in the Act to mean the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to the Act are no longer necessary. Additionally, the second sentence of section 4(d) of the Act states that the Secretary may by regulation prohibit with respect to any threatened species any act prohibited under section 9(a)(1), in the case of fish or wildlife, or section 9(a)(2), in the case of plants. Thus, the combination of the two sentences of section 4(d) provides the Secretary with wide latitude of discretion to select and promulgate appropriate regulations tailored to the specific conservation needs of the threatened species. The second sentence grants particularly broad discretion to the Service when adopting the prohibitions under section 9 for any particular threatened species or DPS.

The courts have recognized the extent of the Secretary’s discretion under this standard to develop rules that are appropriate for the conservation of a species. For example, courts have upheld rules developed under section 4(d) as a valid exercise of agency authority where they prohibit take of threatened wildlife or include a limited

taking prohibition (see *Alsea Valley Alliance v. Lautenbacher*, 2007 U.S. Dist. Lexis 60203 (D. Or. 2007); *Washington Environmental Council v. National Marine Fisheries Service*, 2002 U.S. Dist. Lexis 5432 (W.D. Wash. 2002)). Courts have also upheld 4(d) rules that do not address all of the threats a species faces (see *State of Louisiana v. Verity*, 853 F.2d 322 (5th Cir. 1988)). As noted in the legislative history of the Act, “once an animal is on the threatened list, the Secretary has an almost infinite number of options available to [her] with regard to the permitted activities for those species. [She] may, for example, permit taking, but not importation of such species, or [she] may choose to forbid both taking and importation but allow the transportation of such species” (H.R. Rep. No. 412, 93rd Cong., 1st Sess. 1973).

Exercising this authority under section 4(d), we have developed rules that are designed to address the conservation needs of the North Feather DPS and Central Coast DPS of the foothill yellow-legged frog. Although the statute does not require us to make a “necessary and advisable” finding with respect to the adoption of specific prohibitions under section 9, we find that these rules as a whole satisfy the requirement in section 4(d) of the Act to issue regulations deemed necessary and advisable to provide for the conservation of the North Feather DPS and Central Coast DPS of the foothill yellow-legged frog. As discussed above under **Summary of Biological Status and Threats**, we have concluded that the North Feather DPS and Central Coast DPS of the foothill yellow-legged frog are likely to become in danger of extinction within the foreseeable future throughout their respective ranges primarily due to threats associated with altered stream hydrology, nonnative species, impacts to habitat (agriculture, mining, urbanization, roads, recreation), disease, drought, extreme floods, high-severity wildfire, and the exacerbation of threats from the effects of climate change. The provisions of these 4(d) rules will promote conservation of the North Feather DPS and Central Coast DPS of the foothill yellow-legged frog by encouraging management of each of the DPS’s stream habitat and

landscape in ways that meet both resource management considerations and the conservation needs of the DPSs. The provisions of these rules are one of many tools that we will use to promote the conservation of the North Feather DPS and Central Coast DPS of the foothill yellow-legged frog. For these reasons, we find the 4(d) rules as a whole are necessary and advisable to provide for the conservation of the North Feather and Central Coast DPSs of the foothill yellow-legged frog.

Section 7(a)(2) of the Act requires Federal agencies, including the Service, to ensure that any action they fund, authorize, or carry out is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of designated critical habitat of such species.

If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency (action agency) must enter into consultation with the Service. Examples of actions that are subject to the section 7 consultation process are actions on State, Tribal, local, or private lands that require a Federal permit (such as a permit from the U.S. Army Corps of Engineers under section 404 of the Clean Water Act, a license from the FERC under the Federal Power Act (16 U.S.C. 791a et seq.), or a permit from the Service under section 10 of the Act) or that involve some other Federal action (such as funding from the Federal Highway Administration, Federal Aviation Administration, or the Federal Emergency Management Agency). Federal actions not affecting listed species or critical habitat—and actions on State, Tribal, local, or private lands that are not federally funded, authorized, or carried out by a Federal agency—do not require section 7 consultation.

This obligation does not change in any way for a threatened species with a species-specific 4(d) rule. Actions that result in a determination by a Federal agency of “not likely to adversely affect” continue to require the Service’s written concurrence and

actions that are “likely to adversely affect” a species require formal consultation and the formulation of a biological opinion.

Provisions of the 4(d) Rules for the North Feather DPS and the Central Coast DPS of the Foothill Yellow-Legged Frog

The 4(d) rules will provide for the conservation of the North Feather DPS and Central Coast DPS of the foothill yellow-legged frog by prohibiting the following activities, except as otherwise authorized or permitted: import or export; take; possession and other acts with unlawfully taken specimens; delivery, receipt, carriage, transportation, or shipment in interstate or foreign commerce in the course of commercial activity; or sale or offer for sale in interstate or foreign commerce. These prohibitions mirror those prohibitions afforded to endangered species under section 9(a)(1) of the Act.

In addition to the prohibited activities identified above, we also provide standard and other exceptions to those prohibitions for certain activities as described below.

We note that the long-term viability of the North Feather DPS and Central Coast DPS of the foothill yellow-legged frog, as with many wildlife species, is intimately tied to the condition of their habitat. As described in our analysis of the species’ status, one of the major threats to the North Feather DPS and Central Coast DPS of the foothill yellow-legged frog’s continued viability is habitat loss, degradation, and fragmentation resulting from past or current anthropogenic impacts or from catastrophic wildfires. The potential for an increase in frequency and severity of catastrophic wildfires from the effects of climate change subsequently increases the risk to the DPSs posed by this threat. An additional threat is the occurrence of nonnative species that may predate upon and compete for resources with the foothill yellow-legged frog.

We have determined that actions taken by forest management entities in the range of the North Feather DPS and Central Coast DPS of the foothill yellow-legged frog for the purpose of reducing the risk or severity of catastrophic wildfires and protecting

stream habitat, even if these actions may result in some short-term or low level of localized negative effect to the North Feather DPS and/or Central Coast DPS of the foothill yellow-legged frog, will further the goal of reducing the likelihood of either DPS becoming endangered, and will also likely contribute to their conservation and long-term viability. This includes measures to conduct wildfire prevention activities, non-emergency suppression activities, and other silviculture best management practices that are in accordance with an established forest or fuels management plan that follow current State of California Forest Practice Rules, State fire codes, or local fire codes/ordinances as appropriate.

In addition, habitat restoration efforts that specifically provide for the habitat needs of the North Feather DPS and Central Coast DPS of the foothill yellow-legged frog and include measures that minimize impacts to the species and its habitat are an exception to the prohibitions. These efforts must be carried out in accordance with finalized conservation plans or strategies specifically identified for the foothill yellow-legged frog and include measures that minimize impacts to the North Feather and Central Coast DPSs. These activities will most likely have some limited short-term impacts but overall will provide for conservation of the two DPSs.

Removal and restoration of trespass cannabis cultivation sites are also excepted from prohibitions. These activities will benefit the foothill yellow-legged frog, especially in the Central Coast DPS area. Trespass cannabis cultivation sites cause several issues for the foothill yellow-legged frog, including water diversion, pollution, sedimentation, and introduction of pesticides and fertilizers to streams occupied by the foothill yellow-legged frog. When these sites are found, they often require reclamation (waste cleanup and removal of fertilizers, pesticides, and debris) and restoration to precultivation conditions. Cleanup of these sites may involve activities that may cause localized, short-term disturbance to the North Feather DPS and Central Coast DPS of the foothill yellow-

legged frog. However, the removal of pesticides and other chemicals that can affect the North Feather DPS or Central Coast DPS of the foothill yellow-legged frog and the surrounding environment is encouraged. Removal and restoration of trespass cannabis cultivation sites is expected to have long-term benefits for resiliency of the North Feather DPS and Central Coast DPS.

Nonnative species removal will significantly increase the viability of the foothill yellow-legged frog. As discussed above, bullfrogs, nonnative fish, and nonnative crayfish contribute to foothill yellow-legged frog predation and increase competition for resources. Bullfrogs also are vectors for disease that affects the foothill yellow-legged frog. Actions with the primary or secondary purpose of removing nonnative animal species that compete with, predate upon, or degrade the habitat of the foothill yellow-legged frog that are conducted in unoccupied habitat are provided as an exception to the prohibitions. Actions that disturb habitat, involve the use of chemicals, or are conducted in occupied stream segments are not included.

Under the Act, “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Some of these provisions have been further defined in regulations at 50 CFR 17.3. Take can result knowingly or otherwise, by direct and indirect impacts, intentionally or incidentally. Regulating take will help preserve the species’ remaining populations, slow their rate of decline, and decrease synergistic, negative effects from other ongoing or future threats.

We may issue permits to carry out otherwise prohibited activities, including those described above, involving threatened wildlife under certain circumstances. Regulations governing permits are codified at 50 CFR 17.32. With regard to threatened wildlife, a permit may be issued for the following purposes: For scientific purposes, to enhance propagation or survival, for economic hardship, for zoological exhibition, for educational purposes, for incidental taking, or for special purposes consistent with the purposes of the

Act. The statute also contains certain exemptions from the prohibitions, which are found in sections 9 and 10 of the Act and are included as standard exceptions in the 4(d) rule.

We recognize the special and unique relationship with our State natural resource agency partners in contributing to conservation of listed species. State agencies often possess scientific data and valuable expertise on the status and distribution of endangered, threatened, and candidate species of wildlife and plants. State agencies, because of their authorities and their close working relationships with local governments and landowners, are in a unique position to assist the Service in implementing all aspects of the Act. In this regard, section 6 of the Act provides that the Service shall cooperate to the maximum extent practicable with the States in carrying out programs authorized by the Act. Therefore, any qualified employee or agent of a State conservation agency that is a party to a cooperative agreement with the Service in accordance with section 6(c) of the Act, who is designated by his or her agency for such purposes, will be able to conduct activities designed to conserve the foothill yellow-legged frog, that may result in otherwise prohibited take, without additional authorization.

Nothing in these 4(d) rules change in any way the recovery planning provisions of section 4(f) of the Act, the consultation requirements under section 7 of the Act, or the ability of the Service to enter into partnerships for the management and protection of the foothill yellow-legged frog. However, interagency cooperation may be further streamlined through planned programmatic consultations for the species between Federal agencies and the Service, where appropriate.

III. Critical Habitat

Background

Critical habitat is defined in section 3 of the Act as:

(1) The specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the provisions of section 4 of this Act, on which are found those physical or biological features

(a) Essential to the conservation of the species, and

(b) Which may require special management considerations or protection; and

(2) Specific areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

Prudency Determination

Section 4(a)(3) of the Act, as amended, and implementing regulations (50 CFR 424.12) require that, to the maximum extent prudent and determinable, the Secretary shall designate critical habitat at the time the species is determined to be an endangered or threatened species. Our regulations (50 CFR 424.12(a)(1)) state that the Secretary may, but is not required to, determine that a designation would not be prudent in the following circumstances:

(i) The species is threatened by taking or other human activity and identification of critical habitat can be expected to increase the degree of such threat to the species;

(ii) The present or threatened destruction, modification, or curtailment of a species' habitat or range is not a threat to the species, or threats to the species' habitat stem solely from causes that cannot be addressed through management actions resulting from consultations under section 7(a)(2) of the Act;

(iii) Areas within the jurisdiction of the United States provide no more than negligible conservation value, if any, for a species occurring primarily outside the jurisdiction of the United States;

(iv) No areas meet the definition of critical habitat; or

(v) The Secretary otherwise determines that designation of critical habitat would not be prudent based on the best scientific data available.

As discussed earlier in this document, we did not identify an imminent threat of collection or vandalism identified under Factor B for this species, and identification and mapping of critical habitat is not expected to initiate any such threat. In our SSA report and this final listing determination for the four DPSs of the foothill yellow-legged frog, we determined that the present or threatened destruction, modification, or curtailment of habitat or range (Factor A) is a threat to the four DPSs and that the Factor A threats in some way can be addressed by the Act's section 7(a)(2) consultation measures. The four DPSs occur wholly in the jurisdiction of the United States, and we are able to identify areas that meet the definition of critical habitat. Therefore, because none of the circumstances enumerated in our regulations at 50 CFR 424.12(a)(1) have been met and because the Secretary has not identified other circumstances for which this designation of critical habitat would be not prudent, we have determined that the designation of critical habitat is prudent for the four DPSs of the foothill yellow-legged frog.

Critical Habitat Determinability

Our regulations at 50 CFR 424.12(a)(2) state that critical habitat is not determinable when one or both of the following situations exist:

- (i) Data sufficient to perform required analyses are lacking, or
- (ii) The biological needs of the species are not sufficiently well known to identify any area that meets the definition of "critical habitat."

We reviewed the available information pertaining to the biological needs of the four DPSs of the foothill yellow-legged frog and habitat characteristics where the four DPSs are located. A careful assessment of the economic impacts that may occur due to a critical habitat designation is still ongoing, and we are in the process of working with the State and other partners in acquiring the complex information needed to perform that

assessment. Therefore, due to the current lack of data sufficient to perform required analyses, we conclude that the designation of critical habitat for the four DPSs of the foothill yellow-legged frog is not determinable at this time. The Act allows the Service an additional year to publish a critical habitat designation that is not determinable at the time of listing (16 U.S.C. 1533(b)(6)(C)(ii)).

Required Determinations

National Environmental Policy Act (42 U.S.C. 4321 et seq.)

Regulations adopted pursuant to section 4(a) of the Act are exempt from the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 et seq.) and do not require an environmental analysis under NEPA. We published a notice outlining our reasons for this determination in the *Federal Register* on October 25, 1983 (48 FR 49244). This includes listing, delisting, and reclassification rules, as well as critical habitat designations and species-specific protective regulations promulgated concurrently with a decision to list or reclassify a species as threatened. The courts have upheld this position (*e.g.*, *Douglas County v. Babbitt*, 48 F.3d 1495 (9th Cir. 1995) (critical habitat); *Center for Biological Diversity v. U.S. Fish and Wildlife Service*, 2005 WL 2000928 (N.D. Cal. Aug. 19, 2005) (concurrent 4(d) rule)).

Government-to-Government Relationship with Tribes

In accordance with the President's memorandum of April 29, 1994 (Government-to-Government Relations with Native American Tribal Governments; 59 FR 22951), Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments), and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with federally recognized Tribes on a government-to-government basis. In accordance with Secretary's Order 3206 of June 5, 1997 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act), we readily acknowledge our responsibilities to work directly

with Tribes in developing programs for healthy ecosystems, to acknowledge that Tribal lands are not subject to the same controls as Federal public lands, to remain sensitive to Indian culture, and to make information available to Tribes. We solicited information from all of the Tribes within the entire range of the foothill yellow-legged frog to inform the development of the SSA report, and we notified Tribes of our proposed and this final listing determination. We also provided these Tribes the opportunity to review a draft of the SSA report and provide input prior to making our determination on the status of the foothill yellow-legged frog, but we did not receive any responses. We will continue to coordinate with Tribal entities throughout the recovery and critical habitat designation processes for the foothill yellow-legged frog.

References Cited

A complete list of references cited in this rulemaking is available on the internet at <https://www.regulations.gov> and upon request from the Sacramento Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**).

Authors

The primary authors of this rule are the staff members of the Fish and Wildlife Service's Species Assessment Team and Field Office staff in the Sacramento Fish and Wildlife Office and Ventura Fish and Wildlife Office in California.

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Plants, Reporting and recordkeeping requirements, Transportation, Wildlife.

Regulation Promulgation

Accordingly, we amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

PART 17—ENDANGERED AND THREATENED WILDLIFE AND PLANTS

1. The authority citation for part 17 continues to read as follows:

AUTHORITY: 16 U.S.C. 1361-1407; 1531-1544; and 4201-4245, unless otherwise noted.

2. In § 17.11, amend paragraph (h) by adding entries for “Frog, foothill yellow-legged [Central Coast DPS]”, “Frog, foothill yellow-legged [North Feather DPS]”, “Frog, foothill yellow-legged [South Coast DPS]”, and “Frog, foothill yellow-legged [South Sierra DPS]” to the List of Endangered and Threatened Wildlife in alphabetical order under AMPHIBIANS to read as follows:

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Common name	Scientific name	Where listed	Status	Listing citations and applicable rules
* * * *	* * *			
AMPHIBIANS				
* * * *	* * *			
Frog, foothill yellow-legged [Central Coast DPS].	<i>Rana boylei</i>	California (All foothill yellow-legged frogs in the Central Coast Range south of San Francisco Bay to San Benito and Fresno Counties).	T	88 FR [Insert <i>Federal Register</i> page where the document begins], [Insert date of publication in the <i>Federal Register</i>]; 50 CFR 17.43(g). ^{4d}
Frog, foothill yellow-legged [North Feather DPS].	<i>Rana boylei</i>	California (All foothill yellow-legged frogs in the North Feather River watershed largely in Plumas and Butte Counties).	T	88 FR [Insert <i>Federal Register</i> page where the document begins], [Insert date of publication in the <i>Federal Register</i>]; 50 CFR 17.43(g). ^{4d}
Frog, foothill yellow-legged [South Coast DPS].	<i>Rana boylei</i>	California (All foothill yellow-legged frogs in the Coast Range from Coastal Monterey County south to Los Angeles County).	E	88 FR [Insert <i>Federal Register</i> page where the document begins], [Insert date of publication in the <i>Federal Register</i>].

Frog, foothill yellow-legged [South Sierra DPS].	<i>Rana boylei</i>	California (All foothill yellow-legged frogs in the Sierra Nevada Mountains south of the American River sub-basin south to the Transverse Range in Kern County).	E	88 FR [Insert <i>Federal Register</i> page where the document begins], [Insert date of publication in the <i>Federal Register</i>].
* * * * *				

3. Amend § 17.43 by adding a paragraph (g) to read as follows:

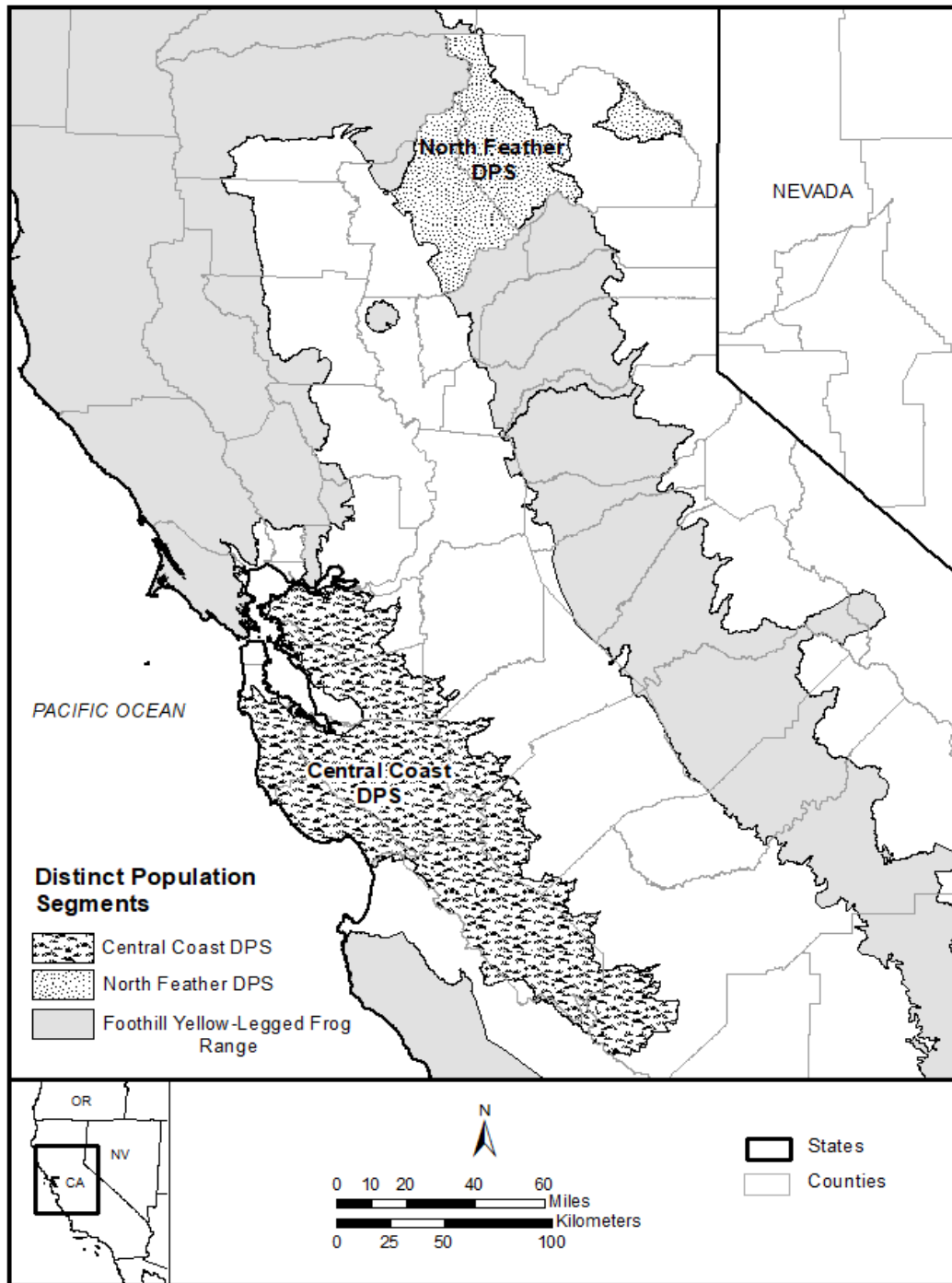
§ 17.43 Special rules—amphibians.

* * * * *

(g) Foothill yellow-legged frog (*Rana boylei*), Central Coast Distinct Population Segment (DPS) and North Feather DPS.

(1) *Location.* The Central Coast DPS and North Feather DPS of the foothill yellow-legged frog are shown on the map that follows:

Figure 1 to paragraph (g)



(2) *Prohibitions.* The following prohibitions that apply to endangered wildlife also apply to the Central Coast DPS and North Feather DPS of the foothill yellow-legged frog. Except as provided under paragraph (g)(3) of this section and §§ 17.4 and 17.5, it is unlawful for any person subject to the jurisdiction of the United States to commit, to

attempt to commit, to solicit another to commit, or cause to be committed, any of the following acts in regard to this species:

(i) Import or export, as set forth at § 17.21(b) for endangered wildlife.

(ii) Take, as set forth at § 17.21(c)(1) for endangered wildlife.

(iii) Possession and other acts with unlawfully taken specimens, as set forth at § 17.21(d)(1) for endangered wildlife.

(iv) Interstate or foreign commerce in the course of commercial activity, as set forth at § 17.21(e) for endangered wildlife.

(v) Sale or offer for sale, as set forth at § 17.21(f) for endangered wildlife.

(3) *Exceptions from prohibitions.* In regard to the Central Coast DPS and North Feather DPS of the foothill yellow-legged frog, you may:

(i) Conduct activities as authorized by a permit under § 17.32.

(ii) Take, as set forth at § 17.21(c)(2) through (c)(4) for endangered wildlife.

(iii) Take as set forth at § 17.31(b).

(iv) Take incidental to an otherwise lawful activity caused by:

(A) Forest management activities for the purposes of reducing the risk or severity of catastrophic wildfire, which include fuels reduction activities, non-emergency firebreak establishment or maintenance, and other non-emergency wildfire prevention and suppression activities that are in accordance with an established forest or fuels management plan that follow current State of California Forest Practice Rules, State fire codes, or local fire codes/ordinances as appropriate.

(B) Habitat restoration efforts that are specifically designed to provide for the conservation of the foothill yellow-legged frog. These efforts must be part of and carried out in accordance with finalized conservation plans or strategies specifically identified for the foothill yellow-legged frog and include measures that minimize impacts to the North Feather DPS or Central Coast DPS. Habitat restoration efforts for other species that

may not share habitat requirements (e.g., salmonid species) are not included in this exception.

(C) Efforts to remove and clean up trespass cannabis cultivation sites and related water diversion infrastructure and restore areas to precultivation conditions.

(D) Removal or eradication of nonnative animal species including, but not limited to, American bullfrogs, smallmouth bass, and nonnative crayfish species occurring within stream reaches unoccupied by the foothill yellow-legged frog within the range of the Central Coast DPS or North Feather DPS. Actions involving habitat disturbance or the use of chemical treatments are not included.

(v) Possess and engage in other acts with unlawfully taken wildlife, as set forth at § 17.21(d)(2) for endangered wildlife.

Wendi Weber,
Acting Director,
U.S. Fish and Wildlife Service.